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Neurologic complications of systemic cancer

Overview

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In a previous edition of Cancer Forum (1998 Jul;22(2)) we discussed the management of primary tumours of the central nervous system (CNS). A more common scenario for the oncologist is the patient with cancer who develops neurologic complications. The difficulty is to determine as quickly as possible the anatomical site ("where is it?"), which often helps to answer the second question of "what is it?". Associations of certain tumours with particular complications can be helpful. For example, adenocarcinomas and melanoma are more common causes of leptomeningeal metastases, while small cell lung carcinoma (SCLC) is the tumour most likely to be associated with paraneoplastic neurologic phenomena.

Management of cerebral metastases

In this forum, Ryan has expertly summarised the issues regarding the management of this common complication. From a neurologic perspective, radiation encephalopathy is a real phenomenon and occurs more commonly in elderly patients. I have seen patients whose neurologic deterioration was rapid and progressive within weeks of radiation. Underlying vascular disease or diabetes may be additional risk factors. However, it is also true that progressive disease has an equally devastating effect on neurologic function. This debate has been seen in primary CNS lymphoma, in which longer survival with chemotherapy increases the risk of whole brain radiotherapy. Patients over the age of 60 are at particular risk. This certainly should inform the decision-making in prophylactic cranial irradiation of SCLC.

Another issue relates to what are appropriate endpoints in trials of brain metastasis therapy. In one pilot study of chemotherapy, patients came off study with progression without reaching the study's endpoints. In the study of Motexafin Gadolinium that is currently being run in a number of sites in Australia, targeting patients with cerebral metastases associated with non small cell lung carcinoma (NSLC), neuropsychologic assessments are included. In addition, a blinded panel of neurologists is being used to define patient progression. Imaging is not a criterion and not required! The US Food & Drug Administration has made it clear in these studies that radiologic response criteria are not rigourous or representative enough to ensure registration. In therapies that are not likely to improve the survival of one group, quality of life and neurologic function are appropriate and meaningful endpoints, but the assessment tools need to be improved.

Leptomeningeal metastasis

The data on management of this complication are limited to small and often retrospective data. Early diagnosis can be important as most fixed deficits are not reversible with therapy, except in patients with lymphoma. It is important to think of this condition to make the diagnosis.

Other potential approaches include a fortnightly intrathecal injection of slow-release Cytarabine[1,2] that is associated with fewer injections. Others have used high dose Methotrexate to bypass problems with CSF flow obstruction.[3] Siegal has discussed the importance of systemic therapy,[4] and argued that this is as active as intrathecal therapies.

Neurosurgery and malignancy

Metastatic spinal cord compression is a true medical emergency and, as Rogers discusses, delayed diagnosis is associated with significant neurologic deficits due to paraplegia or quadriplegia. There is no simple formula for identifying which patients are suitable for surgery, but the Regine study certainly should encourage surgical consideration early.

The clinical warning signs include persistent back pain, with circumferential radicular referred pain and associated with contralateral sensory loss to pain and temperature. Pyramidal weakness of the limbs may follow.

The range of new neurosurgical approaches above that of laminectomy make the procedure applicable to more patients, with the potential to improve quality of life. It still remains difficult to lay out clear guidelines to decide who should, and should not, be operated.

Similarly, the ability to deal with painful brachial plexopathies surgically can make a difference to pain management. A multidisciplinary approach allows for improved management of these complex problems.

Neurologic complications of chemotherapy

As outlined in my paper, it is usually possible to identify specific syndromes associated with certain drugs. Less common reactions need to be considered, and as new drugs, including biological therapies, become available, we may discover new syndromes.

Paraneoplastic neurologic syndromes

While uncommon, these conditions can be devastating for the patient, and are a fascinating window into the interaction between cancer, the immune system and the brain. These syndromes can occur unrelated to malignancy, particularly Lambert Eaton myaesthenic syndrome. Other examples are

the cerebellar syndrome and opsoclonus-myoclonus.

As mentioned by Sutton, antineuronal antibodies may not be present and novel antineuronal antibodies can be found in individual patients whose significance is not clear. The most common antibodies (Hu, Ri, Yo) are available in Australia, but the more recently defined ones are not. It is possible to send specimens to one of the US labs such as that of Dr Josep Dalmau (jdalmau@aol.com).

It appears that the antibodies are not likely to be pathogenic, and recent evidence has focused on the role of killer T cells. One model suggests that apoptotic tumour cells are presented to dendritic cells, producing antigen-specific T cells.[5]

Hopefully, as our understanding improves therapies will also. We hope you find these papers a useful update of the diverse intersection between oncology and neurology.

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Brain metastases 2004: Not the end of the line

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Introduction

Fifteen years ago, the development of brain metastases was regarded as such a negative prognostic event that for most patients it meant the cessation of active systemic management, and many were discouraged from having even palliative radiotherapy, which was the standard treatment approach at that time. Death quickly ensued, with untreated patients having a median survival of only four weeks. However, the intervening years have seen a number of clinical trials and developments in all modalities of oncology that have made this earlier view outmoded. Today the trend is to adopt a much more active approach to the treatment of patients with brain metastases, and to individualise treatment based on a number of patient and disease-related factors. The aims of this approach are to reduce neurological morbidity and mortality in patients with brain metastases, and thus improve both their quality of life and ultimately their survival.

Radiotherapy

Whole brain radiotherapy (WBRT) remains the most appropriate treatment for the majority of patients with brain metastases. Around two-thirds of patients have multiple metastases at diagnosis, thus rendering surgery not an option in most cases. Radiotherapy increases the median survival to four to six months, and reduces the proportion of patients who die of progressive neurological complications to less than 50%, ie many patients succumb to their systemic disease rather than their brain disease.[1] The optimal radiation schedule, however, is still open to question. The Radiation Therapy Oncology Group (RTOG) has performed a number of randomised trials of different regimens of WBRT, ranging from 20Gray (Gy) in 5 fractions to 50Gy in 20 fractions, without any obvious difference in efficacy.[2] Thus most radiation oncologists will opt for a short schedule – 20Gy in 5 fractions, or 30Gy in 10 fractions being the most commonly used.

A number of studies have attempted to improve the efficacy of WBRT by the addition of radiation sensitisers such as RSR13 and motexafin gadolinium, or concurrent chemotherapy. The combination of WBRT and radiation sensitisers appears to result in minor gains in survival and/or time to neurological progression in very specific sub-populations of patients with brain metastases,[3] and studies are ongoing. Concurrent chemotherapy trials have suffered from difficulties with accrual, but significant benefit with older chemotherapy agents such as carboplatin has not been clearly established.[4] However, newer agents may be more successful in this setting. Phase I/II studies of Topotecan in combination with WBRT have demonstrated encouraging early results.[5] There also has been a phase II randomised trial showing a significant improvement in survival and time to neurological progression in patients treated with concurrent and adjuvant temozolomide and WBRT 40Gy compared with WBRT alone.[6] Larger randomised studies will be necessary to confirm the results of these smaller studies.

One area of increasing interest is that of prophylactic cranial irradiation (PCI). Meta-analysis has now confirmed this as not only reducing the incidence of brain recurrence in patients with small-cell lung cancer who achieve a complete response of their primary disease by over 50% (relative risk 0.46), but also has demonstrated increased survival in PCI-treated patients (16% reduction in risk of death, with a 5.4% increase in three-year survival).[7] PCI for non-small cell lung cancer (NSCLC) has not been so successful; however, with better staging, particularly PET scanning, and more effective primary treatment, the role of PCI in selected patients is being re-evaluated, with several randomised studies in progress.

One of the major concerns with WBRT has been the potential for late toxicity. Although most patients with brain metastases treated with WBRT do not survive 12 months, there is a significant tail on the survival curve, and early reports suggested a worrying incidence of long-term dementia in patients who survived more than 12 months. Recent trials, however, indicate a much lower risk of long-term toxicity. Tests of neurocognitive function in patients treated with PCI do not demonstrate any excess of long-term impairment compared with the non-PCI group.[8] Fractionation may be important, and it is probably best to avoid fraction sizes greater than 3Gy in patients with better prognosis disease.

But what defines "better prognosis disease"? Although the RTOG trials did not show an advantage to any specific radiation schedule, they did allow the identification of subgroups with different prognoses. This recursive partitioning analysis (RPA) assigned patients to one of three groups. RPA class[1] patients had Karnofsky scores of > 70, age < 65 years, controlled primary disease and no extracranial metastases. RPA class 3 patients had Karnofsky scores of < 70, with or without other unfavourable factors. RPA class 2 included all other patients. Survival in the three groups, 1, 2, and 3, was 7.1 months, 4.2 months, and 2.3 months respectively. The RPA class can thus be used as a guide to the aggressiveness of the treatment approach.[9]

Surgery

The landmark surgical study was performed by Patchell, who randomised 48 patients with single brain metastases to either surgery plus WBRT or WBRT alone.[10] The radiation dose for both groups was 36Gy in 12 daily fractions. There was a statistically significant increase in survival for the surgical group (40 weeks vs 15 weeks). In addition, the time to recurrence of brain metastases, freedom from death due to neurologic causes, and duration of functional independence were significantly longer in the surgical resection group.

Importantly, the one-month mortality was four percent in each group, indicating that there was no additional mortality resulting from surgery. A subsequent Dutch study using a different radiation schedule (40Gy in 20 fractions) showed a similar survival advantage to the surgical arm, with a trend toward longer duration of functional independence in these patients.[11] A negative Canadian study has been criticised because of probable selection bias leading to poor results in its surgical arm compared with the other two studies, and its results thus largely disregarded.[12]

The two positive studies established the role of surgery in the treatment of patients with a single brain metastasis. Two further questions were then posed. The first was whether surgery would be beneficial for patients with more than one brain metastasis. To date there remains no definite evidence to support a survival advantage for surgery over WBRT in this situation. However, surgery may be considered in patients with multiple metastases in specific situations, eg a dominant lesion responsible for most of the patient's symptoms (large posterior fossa metastasis, metastasis with large area of associated oedema), or residual/recurrent symptomatic lesion following radiotherapy. Neurological morbidity, if not survival, can be considerably improved by this approach. The more controversial question remains whether patients with a single metastasis which has been resected benefit from the addition of radiotherapy. The one randomised study looking at this question showed a marked reduction in the incidence of in-brain recurrence both at the index site and elsewhere in the brain, and in neurological mortality.[13] However, no survival advantage could be demonstrated. This has been interpreted by some as a reason to defer radiotherapy, with avoidance of neurological morbidity being cited as a major benefit; however, the toxicity of WBRT is generally modest, and should be balanced against the documented reduction in neurocognitive functioning that results from recurrent brain metastases. WBRT given at the time of recurrence may not improve this, even with objective response to treatment. Despite the negative study results, Patchell remains convinced there is a strong argument in favour of adjuvant WBRT following focal therapy.

There is a small subgroup of patients whose solitary brain metastasis is either the presenting symptom of their malignancy, or is found on initial staging. Several small retrospective series support a radical surgical approach at both sites in such patients, including a local study of 20 patients which reported a zero mortality rate with this approach, and a median survival of 12 months.[14]

Radiosurgery

Radiosurgery is a radiotherapeutic technique that delivers high dose, highly conformal, small field radiotherapy to brain lesions that might otherwise be treated surgically. Although there are many retrospective reports of its efficacy in the treatment of brain metastases,[15] there is a paucity of randomised data. The largest randomised study is the RTOG 95-08, which compared WBRT 37.5Gy plus radiosurgery to WBRT alone in patients with up to three brain metastases. Patients with single metastases treated with radiosurgery plus WBRT had a significantly longer survival than those treated with WBRT alone (6.5 months vs 4.9 months), but in those with two or three metastases there was no significant difference in either survival or local failure rates. There was no significant difference in the cause of death for either group.[16]

Comparison of the results of radiosurgery plus WBRT for single brain metastases appear to be similar to those of surgery plus WBRT, although no direct randomised comparison has been undertaken to date. A current randomised Trans-Tasman Radiation Oncology Group (TROG) study hopes to answer this question definitively. In the interim it is reasonable to offer radiosurgery as an alternative to surgery in patients with single metastases less than 3cm in diameter not demonstrating significant mass effect. Radiosurgery may also be considered for patients treated surgically, where there is known or suspected small volume residual disease, although there is no published data to support this approach at present.

Chemotherapy

The long-held view that chemotherapy was unlikely to be successful for brain metastases because of the blood-brain barrier has been challenged by newer agents that are achieving significant response rates. The current view is that brain metastases themselves cause disruption of the blood-brain barrier, and that the lack of response to chemotherapy in the past related more to ineffective agents given as second- or third-line therapy. Despite this optimism, most of the supporting evidence for chemotherapy remains anecdotal, with a paucity of clinical trial data. Temozolomide and Topotecan are the most promising agents, with small phase II trials having response rates of 30-40%, including patients previously irradiated.[17,18] Larger clinical trials are needed to confirm these findings, and also to investigate newer molecular-based therapeutics,[19] alone and in combination with currently available treatment options, to determine the optimal application of chemotherapy to metastatic brain tumours.

It may be reasonable to consider chemotherapy as first-line treatment for patients with brain metastases causing little or no neurological morbidity, and who have an indication for systemic chemotherapy for metastases elsewhere in the body. However, if unnecessary neurological morbidity is to be avoided, such patients need to be carefully monitored, and other treatment modalities introduced promptly if there is not good early evidence of response.

Conclusion

There is no one-size-fits-all treatment for patients with brain metastases. A treatment plan based on careful consideration of individual patient, disease and treatment parameters will maximise the outcome for the patient, in both survival and quality of life. Such decisions are best made in a multidisciplinary

clinic by clinicians experienced in the management of patients with brain metastases. Patients should be treated on clinical trials where possible. Regular monitoring post-treatment will enable any further appropriate interventions to be offered in a timely fashion.

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Leptomeningeal metastasis

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Leptomeningeal metastasis (LM) is usually a late complication of cancer, often accompanying systemic relapse of tumour. LM can affect any part of the neuraxis. It may seed the leptomeninges diffusely or multi-focally. Tumour deposits may be macroscopic or microscopic. The incidence of LM at autopsy in cancer patients is 8%.[1] The incidence is decreasing in acute lymphoblastic leukaemia, and increasing in breast cancer and in small cell lung cancer (SCLC). LM is common in haematological malignancies (leukaemia and non-Hodgkin's lymphoma) and in solid tumours (breast, melanoma and lung, especially small cell). It occurs more commonly in adenocarcinoma than in squamous cell carcinoma. Occasional patients have primary leptomeningeal tumour: lymphomas, especially T-cell lymphomas, and melanoma. The central nervous system, and particularly the cerebrospinal fluid (CSF), can be a sanctuary site and therefore a site of recurrence for patients whose metastatic tumour has otherwise responded to chemotherapy.[2]

Pathophysiology

Neurological symptoms occur through several pathophysiological mechanisms.[3] Tumour may invade the parenchyma. It can cause ischemia by direct interference with the blood supply to the brain or by competing for oxygen and metabolites. Occlusion of CSF outflow from the fourth ventricle and resistance to CSF absorption can lead to hydrocephalus.

Clinical symptoms and signs

Clinical symptoms and signs can occur at any level of the neuraxis and are often multifocal.[4] Symptoms and signs can be divided into cerebral, cranial nerve, spinal, and meningeal irritation. Cerebral symptoms may include headache, gait ataxia or apraxia, cognitive difficulties, episodic loss of consciousness, seizures, dysarthria or dysphasia and dizziness. Involvement of cranial nerves is rarely a presenting complaint but cranial nerve signs are often present. Diplopia is the most common symptom, but an extraocular muscle palsy may be present without symptomatic diplopia. Other cranial nerve symptoms include hearing loss, facial numbness, facial weakness, visual loss, dysphagia and hoarse voice. Spinal leptomeningeal disease can lead to invasion of spinal nerve roots producing radicular pain, weakness, parasthesia, and bladder or bowel disturbance. Reflexes are often absent. Meningeal irritation can lead to neck or back pain and neck stiffness. LM can produce virtually any neurological symptom and sign, and so must be considered in the differential diagnosis in patients with cancer and neurological symptoms.

Diagnosis

The diagnosis is often difficult to establish, even when strongly suspected clinically. Traditionally, to establish a definitive diagnosis requires the finding of malignant cells in CSF on cytological examination, but several lumbar punctures may be required to establish the diagnosis.[4,5] A single examination is positive in approximately 50% of cases, and this rises to 85-90% after three procedures. Cytology remains negative in some patients despite repeated testing of CSF from multiple lumbar punctures. These false-negative results may result from strong adherence of malignant cells to the leptomeninges or to the presence of focal rather than widespread leptomeningeal tumour.

Obtaining CSF from a different site than the lumbar space, such as performing a cisternal puncture, may improve the yield of positive cytology, and this may be true particularly in patients with predominantly cerebral symptoms.[6] In some instances cytology of ventricular fluid obtained through an intraventricular reservoir is positive when lumbar CSF cytology is negative. Other CSF markers such as elevated protein, raised cell count, low glucose, raised opening pressure and elevated tumour markers may give an indication of the presence of LM, but they are not diagnostic since they may be abnormal in other conditions. In some clinical circumstances CSF cannot be obtained, for example in patients with raised intracranial pressure and in patients with a coagulopathy.

Neuroimaging is an additional tool to assess for LM. Neuroimaging is useful both to help confirm a clinical suspicion of LM and to exclude other causes of neurological symptoms and signs. Magnetic resonance imaging (MRI) may be abnormal in patients with LM, but these abnormalities are often not specifically diagnostic of LM. The use of neuroimaging in the clinical decision-making process in the cancer patient suspected to have LM has been examined.[7] In this study MRIs were classified as either positive, suggestive, or negative for LM. Positive scans were those that showed clear leptomeningeal enhancement in the brain, spinal cord or cauda equina, or subependymal enhancement. Suggestive scans included those with dural enhancement (focal or diffuse enhancement over the convexity of the brain surface but not extending into sulci), superficial cerebral lesions that were in close proximity to the subarachnoid space or appeared to sit within sulci, enhancement of cranial nerves, communicating hydrocephalus, and slight leptomeningeal enhancement in the brain, spinal cord or cauda equina. Neuroimaging was abnormal in 79% of patients with positive cytology, and this figure is similar to those quoted in the literature.[8,9] Neuroimaging, however, was more likely to be abnormal in patients with solid tumours (90%) than those with hematological tumours (55%). The higher incidence of neuroimaging abnormalities in patients with solid tumours is likely related to the surface adhesion properties of these neoplasms. This property not only leads to the formation of bulky leptomeningeal masses which enhance on neuroimaging, but is likely an important factor in the formation of superficial cerebral lesions and communicating hydrocephalus as well.

In this series a diagnosis of LM was made in 77 of the 137 patients in whom it was clinically suspected. In 24/77 (31%), this diagnosis was made on the basis of neuroimaging and clinical picture without a positive CSF cytology; the majority of these patients (19/24) had positive neuroimaging. Most of these patients did not have a lumbar puncture or had at most one CSF examination. CSF cytology and neuroimaging were complementary in the diagnosis of LM in this series. In cancer patients with a clear clinical picture consistent with LM and appropriate neuroimaging findings, it is prudent to treat the patient on the basis of this evidence rather than pursuing a positive cytology with repeated lumbar puncture. It must be emphasised, however, that the diagnosis of LM cannot be based solely on the presence of an abnormal scan, but must be considered in the context of the clinical picture. For example, in a patient with breast cancer who has headache, multiple cranial nerve palsies and radicular symptoms and signs, the presence of leptomeningeal enhancement on brain and spine MRI is adequate to confirm the presence of LM even if CSF cytology is negative. Conversely, the presence of leptomeningeal enhancement in a patient with prostate cancer must be interpreted with caution, as this tumour rarely metastasises to the leptomeninges.

Treatment

Treatment of LM must be delivered to the entire neuraxis. Treatment options include radiotherapy and chemotherapy. Radiotherapy is used to treat symptomatic sites, such as a painful cauda equina lesion or the base of skull to treat cranial neuropathies, or to treat asymptomatic mass lesions. Chemotherapy is used to treat the rest of the neuraxis. Intrathecal chemotherapy delivered via an intra-ventricular reservoir is the preferred route of administration. It is more convenient than repeated lumbar punctures, and ensures more complete delivery of drugs to the neuraxis than chemotherapy delivered via the lumbar route. In patients with impaired CSF flow, however, the drug may not be adequately delivered to the entire neuraxis.

Only certain drugs can be delivered intrathecally. Some drugs, such as vincristine, are highly neurotoxic when delivered into the CSF. The most commonly used drug is methotrexate; ara-C and thiotepa also can be used. A slow-release formulation of cytarabine also has been developed.[10] A typical regimen of methotrexate would be 12mg given twice weekly for five doses, after which the frequency of treatment is reduced, until it is eventually administered monthly.[3] Duration of treatment is empirical. Patients are monitored clinically and by checking cytology on CSF aspirated from the intraventricular reservoir prior to each administration of chemotherapy. Side effects of intrathecal methotrexate include aseptic meningitis, which occurs within hours of administration of the drug (far sooner than bacterial meningitis introduced by this technique), acute encephalopathy, transverse myelopathy, and chronic leukoencephalopathy which can lead to dementia, hemiparesis or quadriparesis. Patients being treated with intrathecal methotrexate should receive oral leucovorin to prevent systemic toxicity.

A ventriculo-peritoneal shunt is sometimes required if patients have raised intracranial pressure, for example if they have intractable headache, papilledema with visual loss or obtundation.

Prognosis

The prognosis of LM is generally poor. Untreated, most patients with symptomatic LM die within six weeks to two months.[5] With treatment, patients with leukaemia achieve excellent results, but patients with solid tumours fare less well; 75% stabilise or improve over several months, but 25% do not respond and have progressive disease. Despite initial improvement, most patients survive only a few months. The median survival of patients with solid tumours treated for LM is of the order of six months.[4] Breast cancer and small cell lung cancer are the two solid tumours that respond best to treatment of LM. Some patients with breast cancer and LM run a more indolent course; 15% of patients with breast cancer survive more than one year.[3]

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Vertebral column surgery for metastatic disease

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Introduction

The role and value of surgery in vertebral column metastatic disease is still poorly understood. In the opinion of the author this precludes a number of patients from being offered an appropriate surgical option as part of an individualised management strategy.

Until recently, only one study was available in the literature comparing the outcome of a surgical procedure (laminectomy only) followed by radiotherapy, to radiotherapy alone for epidural metastases.[1] It is over 20 years since its publication. A comprehensive review of the literature relating to the evidence for surgical intervention in spinal metastatic disease recently has been published.[2] The conclusion of the authors was that no guidelines could be provided in relation to surgical management due to insufficient evidence; they did however produce their own recommendations.

The predilection of certain tumours for bone (especially the spinal column) is well documented in clinical and autopsy studies[3,4,5,6] and therefore with an ageing population the expectation would be for an increased incidence of patients presenting with symptomatic metastases.

Apart from direct surgical intervention, in selected cases there may be a role for vertebroplasty and kyphoplasty which would be carried out by specialist interventional radiologists. The place of these interventions in the treatment of metastatic spinal disease is yet to be determined.

What are the aims of surgical intervention?

It must be made clear to the patient and relatives that surgical intervention for symptomatic spinal lesions is not curative; there is currently no data to support the proposition that it will improve survival duration. Surgery can be a powerful palliative tool aiming to improve quality of life;[7] it can do this by providing pain relief and maintaining or restoring neurological function. Patients presenting with paraplegia of greater than 24 hours duration have very low rates of neurological salvage.[7]

Recently, a study has been published in abstract form that looked at 101 patients with malignant spinal cord compression due to solid tumour metastasis.[8] The patients had only a single site of cord compression, and were randomised to surgery (within 24 hours) and radiotherapy or radiotherapy alone. Sixteen patients in each group were unable to walk at study entry. Fifty-six percent of patients in the surgical group recovered their ability to walk, while only 19% in the radiotherapy group achieved the same level of function (p=0.03). Overall, the surgical group retained their walking ability significantly longer (median 126 days vs 35 days, p=0.006). Morphine and dexamethasone use was significantly reduced in those receiving surgery. While survival was not significantly different, there was a trend to longer survival in those receiving surgery.

Spinal pain can be produced by tumour invasion of the spinal column (with or without collapse of a vertebral body), deformity developing secondary to tumour-induced instability and epidural compression (with or without neurological involvement).

The initial referral, radiotherapy or surgery

Radiotherapy has an initial role when vertebral body height is preserved and the tumour is radiosensitive. Radiotherapy has no role when there is spinal column deformity causing pain or neurological dysfunction, or when bony fragments as opposed to epidural (soft) tissue cause neural compression (spinal cord, cauda equina or nerve root). Surgery can be offered when radiotherapy fails, however, the rate of neurological salvage declines and surgical morbidity increases (particularly wound infection rates) in a previously irradiated field.[9,10]

Patient selection

This is one of the most difficult and crucial components of management. It is generally agreed that the anticipated minimum length of survival should be three months.[11] Beyond this there are numerous variables that are considered by the surgeon making the assessment. The factors that require consideration include the patient's systemic condition (nutritional and functional status), the sites of other non-spinal metastases and the impact of chemotherapy and prior irradiation on immunologic function.

MRI is undoubtedly the diagnostic procedure of choice, and can assess for compression at multiple sites.

Surgery can be offered to an appropriate range of candidates whose load of spinal disease may range from a solitary lesion to extensive non-contiguous disease.

Surgical procedures

The gamut of surgical procedures that can be offered to patients is not limited to laminectomy. There is now an extensive range of mechanical devices employed in surgical procedures that provide immediate stability to the affected spinal column. This can have the affect of immediate pain reduction and allow rapid post-operative mobilisation. The spinal column from the cranio-cervical junction to the sacrum can be accessed. The surgical procedures carried out may include decompression alone or a combination of decompression, reconstruction and stabilisation. The surgeon assessing the patient should have expertise in complex spinal surgery.

Cervical spine

Procedures in the cervical spine may demand access from the anterior or/or posterior direction. In the upper cervical region (C1 and C2), if an anterior approach is necessary this can be performed via a trans-oral route (figure one).

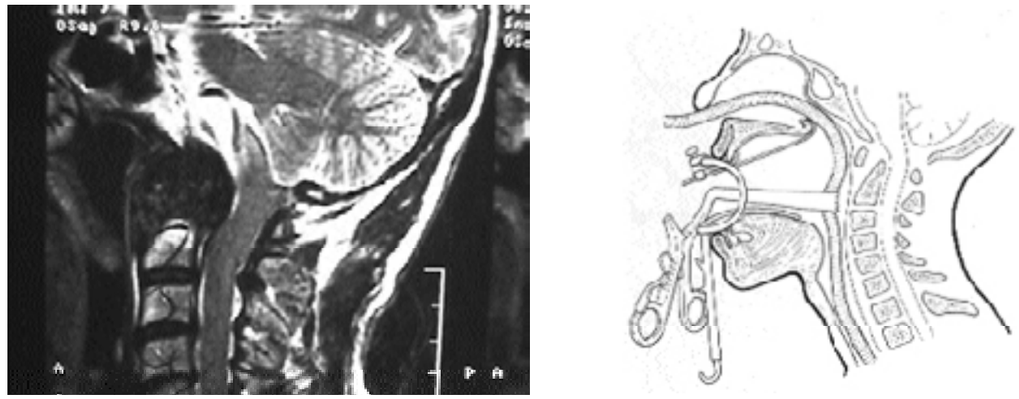
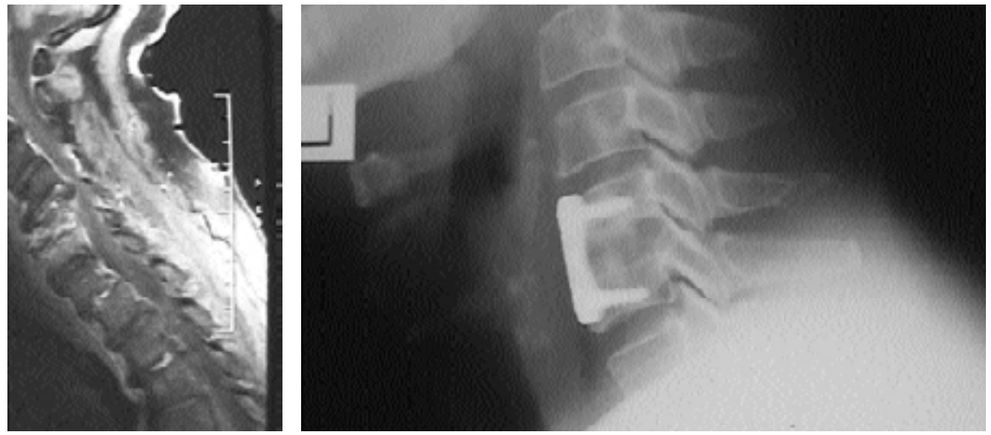


Figure 1: A tumour eroding the odontoid peg and causing severe compression of the cervico-medullary junction seen on MRI. The route required for decompression is trans-oral.

In the cervical spine below the axis (C2) the lesion usually will be approached from the direction of compression ie a mass causing compression of the anterior aspect of the spinal cord will be approached anteriorly (figure two).



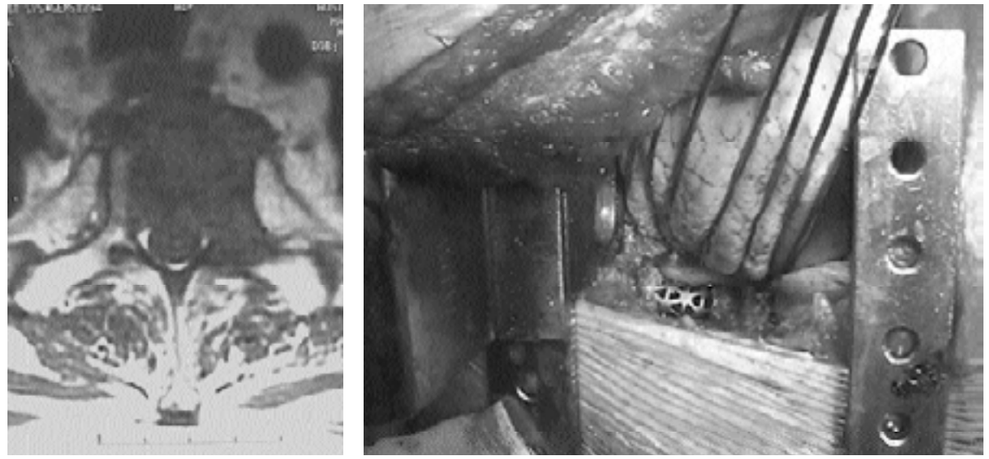


Figure 3: The MRI image demonstrates a solitary thoracic spine metastasis. The intra-operative picture shows a trans-thoracic approach with the lung being retracted and the vertebral body (having been excised) replaced by a titanium mesh cage.

Thoracic spine

In the thoracic spine anterior pathology at the cervico-thoracic junction or in the upper thoracic region (T1-T3) can be approached via a 'modified anterior approach' which requires resection of the medial third of the clavicle and the sterno-clavicular joint.

From T4-T12 a thoracotomy (trans-thoracic approach) provides the best access (figure three).

Posterior approaches in the thoracic spine will usually involve removal of the lamina and on occasions the pedicle to facilitate spinal cord decompression. In select patients who have severe circumferential cord compression anterior and posterior approaches may be combined (figure four).

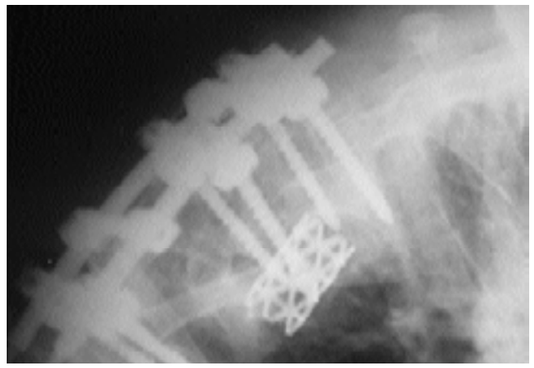


Figure 4: A post operative film following the resection and reconstruction of a thoracic tumour which had caused severe circumferential spinal cord compression. A mesh cage has been used to replace the vertebral body and from a posterior direction pedicle screws and rods aid spinal stabilisation after resection of the pedicles and lamina.

Lumbar spine

Pathology in the lumbar region is usually approached from the posterior direction; if anterior access is required for decompression of the conus or cauda-equina this is usually via a retro-peritoneal route (figure five).

Surgical complications

The most common post-operative complication in the majority of surgical series for spinal tumours is wound infection. There is a statistically significant difference in wound infection rates and other major and minor complications in patients who had pre-surgical irradiation and those who did not.[7] Nutritionally-depleted patients undergoing any surgical procedure are known to have a higher risk of infection. There does not appear to be any correlation between preoperative haemoglobin, white cell, lymphocyte and platelet counts and surgical morbidity. Early mobilisation post surgery is important to minimise the risk of pneumonia and deep venous thrombosis; the advent of a variety of internal fixation devices makes this possible and safer.

Conclusions

Patients with spinal cord compression caused by bone instability and/or collapse or progressive neurological deterioration who are being considered for surgical intervention should avoid preoperative radiotherapy. The decision to proceed to surgical intervention can be made only after multiple factors, which importantly include the wishes of the patient, are considered.

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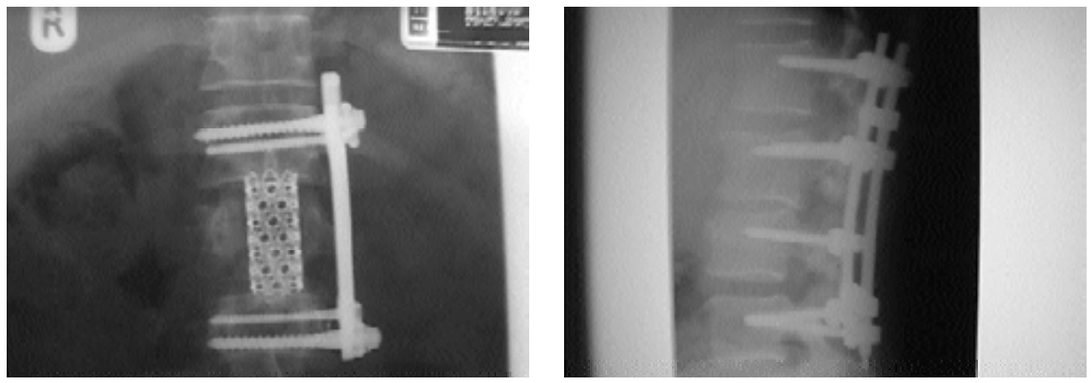

Figure 5: The AP x-ray on the left is a post-operative film following a retro-peritoneal excision of tumour followed by reconstruction (titanium mesh cage and internal fixation). The lateral x-ray on the right demonstrates internal fixation with pedicle screws following a decompression for neural compression and associated instability.

Brachial plexus surgery and apical lung tumours

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Historically, management of apical lung tumours (superior sulcus tumours or Pancoast tumours) that involve the brachial plexus has been very limited, and usually all that was offered was palliative care.[1] However, several advances have been made in the management of these tumours, such that the aim of treatment now is complete clearance of macroscopic tumour. The surgical approach, as well as changes in the use of induction radiotherapy and chemotherapy have resulted in improved functional and survival outcome in these patients. Based on our experience in treating these patients at the Austin Hospital, we present the following overview of our strategy in managing these difficult tumours.

Clinical presentation and investigation

Patients with apical lung tumours involving the brachial plexus will present with symptoms relating primarily to the lung tumour itself, or alternatively, may present with neurological symptoms, including pain, numbness, wasting or weakness in the ipsilateral hand, and may have a Horner's syndrome. The mode of presentation may result in a delay in diagnosis (eg hand pain mistaken for carpal tunnel syndrome), however, these tumours are always seen on a chest x-ray, and therefore, diagnostic delay should not be a common occurrence (figure one).

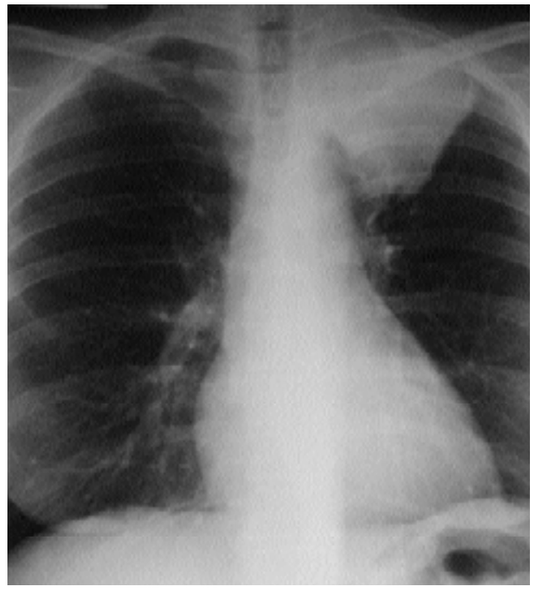

Figure 1: CXR showing left sided apical lung tumour. This tumour encased the C8 and T1 nerve roots of the brachial plexus.

The imaging studies required include chest x-ray, CT of the chest, and MRI of the chest, brachial plexus and cervical spine. The features peculiar to this type of tumour that need to be evaluated include the intra-thoracic extent of tumour (including other tumours within the lungs, bronchi, etc), as well as the neurological involvement of the lower trunk of the brachial plexus and the C8 and T1 nerve roots (figure two). The tumour may invade directly through the nerve root exit foramen, along the path of the nerve root, and enter the spinal canal, with resultant spinal cord compression. This needs to be thoroughly evaluated on the pre-operative imaging studies, as well as systemic staging.

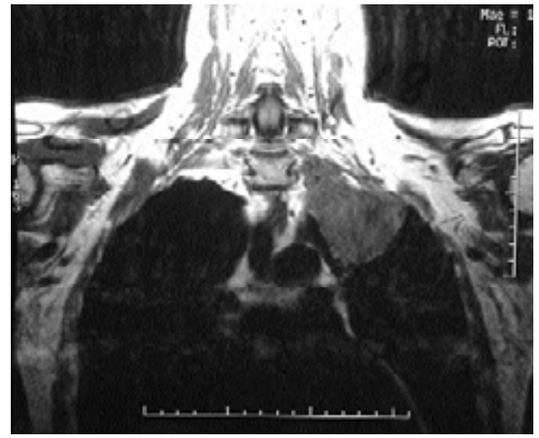

Figure 2: Coronal MRI of the lung apex and brachial plexus (same patient as figure one). The tumour extension into the lower elements of the brachial plexus is easily appreciated.

In the absence of significant systemic disease, a multidisciplinary approach is used to treat the apical lung tumour.

Treatment

All patients are now receiving induction chemotherapy and radiotherapy before undergoing surgery.[2] Despite our initial reservations, we have not found that this causes any significant peri-tumoural fibrosis. In all cases, surgical dissection has proceeded smoothly despite the completion of radiotherapy a few weeks earlier. However, in a few tumours, we have noted significant intra-tumoural fibrosis, which was noted histologically, with replacement of viable tumour by fibrotic tissue. The chemotherapy and radiotherapy protocols are beyond the scope of this paper, however further details are available.[2] In some of our patients, definite reduction in tumour size has followed the pre-operative chemotherapy and radiotherapy, however this is not a universal finding.

The surgical procedure is performed by a thoracic surgeon and a neurosurgeon working together. A modification of the posterior subscapular approach is used.[3,4] A thoracotomy approach is utilised with the patient in a lateral position, with the ipsilateral arm brought across the chest to help with lateral mobilisation of the scapula. The dissection exposes the first and second ribs, their articulation with the spinal column, and the upper lobe of the lung. The first priority is to display the lower elements of the brachial plexus, and to dissect the tumour off C8, T1 and the lower trunk. The tumour is then 'delivered' into the chest, and the resection proceeds according to the anatomical profile of the tumour, as shown on the pre-operative imaging. We have encountered three types of tumour, and treated each type differently. Type 1 tumours are small and restricted to the lung apex, in which case a segment of lung is resected. Type 2 tumours are more extensive and have required a formal lobectomy. Type 3 tumours have invaded the chest wall, and require resection of chest wall

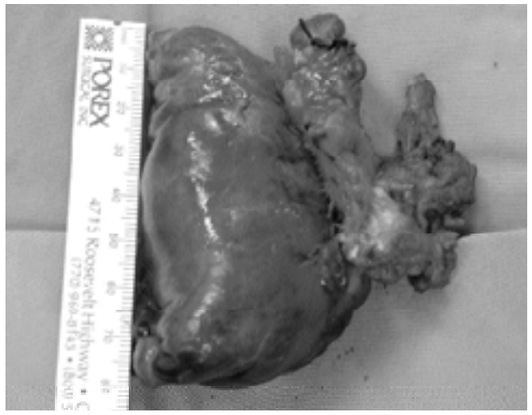

Figure 3: Specimen post type 3 resection. The tissue immediately next to the ruler is lung apex, while the tissue on the right side of the specimen represents rib, muscle and tumour.

elements as well as the lung resection (figure three).

Results

In five patients treated by the authors with apical lung tumours and brachial plexus involvement, macroscopic clearance of tumour has been achieved in each case, with preservation of upper limb function. One patient did have pre-operative weakness of hand intrinsic muscle function that failed to recover post-operatively, but no patient developed a new deficit. Tumour type has varied, with at least one patient in each group of type 1, 2 and 3 as defined above. Our followup period is only two years at present (all patients still alive), however, a detailed survival analysis will not be completed until five-year results are available.

Discussion

As with most cancer surgery, prognosis is dependant largely on the extent of tumour resection. Complete resection offers the best results. However, apical lung tumours offer several unique problems that limit management options in many cases. Many surgeons are reluctant to operate on lung tumours that involve the brachial plexus for fear of permanently injuring the ipsilateral upper limb. Furthermore, some surgeons are still concerned about operating on such tumours after radiotherapy and chemotherapy has been administered. There is now sufficient evidence in the literature, as well as our own personal experience, that these tumours can be safely resected after chemotherapy and radiotherapy, and that hand function can be preserved. It is the multidisciplinary approach that is critical to achieving good results for these patients, and such patients should be managed in a hospital that offers the combined expertise of a thoracic surgeon, neurosurgeon, radiation oncologist and medical oncologist.

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Neurologic complications of cancer chemotherapy

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As neurologic complications of cancer are not uncommon, it is important for the oncologist to be aware of both the common and uncommon neurologic complications of chemotherapy. The clinical aspects of these interactions have been described in detail.[1,2] A working knowledge of these interactions is helpful in identifying the cause of a patient's symptoms, and help in management, particularly where specific therapies are available. Some are dose-related, while others may arise in the presence of specific risk factors. Lastly, some are idiosyncratic. Preventative therapies are being investigated and some show promise. Given the impact of neurologic dysfunction on quality of life, this will remain an important topic, particularly in those with good prognosis.

Peripheral nervous system (PNS) involvement

The most common effect of chemotherapy on the PNS is a sensory neuropathy. Neuropathies are often classified by the major nerve fibres types affected, eg larger myelinated fibres versus the smaller unmyelinated fibres. Neurophysiologically, they are separated into neuropathies that have significant slowing of motor and/or sensory nerves, often associated with conduction block (demyelinating) and the axonal neuropathies in which the nerve fibre itself is damaged. The demyelinating neuropathies often disproportionately affect proprioception mediated by the large fibres, while the axonal neuropathies tend to affect pain and temperature pathways. Lhermitte's syndrome is sometimes seen, suggesting central involvement. Importantly, patients with pre-existing neuropathies are at increased risk of severe neurotoxicity with any of the compounds listed below.[3] Therefore patients with known familial (Charcot Marie Tooth) or acquired (diabetic, inflammatory neuropathies) neuropathies should in general not be treated with drugs toxic to the PNS.

Vincristine typically causes an axonal neuropathy with loss of small fibre function predominantly; a dying back neuropathy associated with inhibition of microtubule formation. Common as well are muscle pain, often with jaw pain. Autonomic dysfunction can cause constipation, and even postural hypotension. Foot drop occurs in more severe cases. Bulbar dysfunction has been reported in children at high doses. The taxanes also paradoxically stabilise and promote microtubule assembly, and can cause a significant neuropathy that is typically sensory but may in cases involve motor nerves as well.[4] The pattern is predominantly axonal.

Cisplatin causes a demyelinating neuropathy, that may progress even after the cisplatin has been ceased. It is therefore worthwhile to monitor its progress in any patient, looking for a sensory ataxic gait and a positive Romberg's.[5] Oxaliplatin is a new platinum compound that uniquely has activity in colorectal carcinoma, but also has novel neurologic side effects that have been recently reviewed.[6] It has both early and chronic effects,

Table 1: Clinical characteristics of platinum peripheral neuropathy[6]

		Oxaliplatin	
	Cisplatin	Acute	Chronic
Incidence	45%	85-95%	grade 3/4 in 16%
DLT	yes	no	yes
Symptoms	paraesthesia, dysaesthesia, sensory ataxia	paraesthesia, dysaesthesia, sensory ataxia	paraesthesia, dysaesthesia
Location	extremities	extremities, oral	extremities
Trigger	none	cold exposure	none
Motor symptoms	none	rare muscle spasms	none
Onset	delayed	acute	delayed
Recovery	slow, incomplete	rapid, complete	less slow, more complete
Schedule dependence	none	yes probably	none
Other	ototoxicity	pharyngolaryngeal dysaesthesias	none

DLT: Dose limiting toxicity

summarised in table one. The pharyngolaryngeal dysaesthesias with feeling of respiratory obstruction or swallowing difficulty, may be disconcerting for the patient but are not dangerous. They may be reduced by slowing the rate of infusion. The features of the acute neuropathy are also summarised in table one. The acute neuropathy is common, but over time merges with the chronic symptoms.

There is good evidence that the chronic neuropathy is related to total dose administered. Dosing up to ~800 mg/m2 is associated with 16% grade 3 toxicity, while at doses > 1100 mg/m2, 50% of patients will be affected. Usually, tumour response is seen before these levels are reached, and oxaliplatin toxicity generally slowly resolves over 13 weeks, although can be permanent in some patients. At high doses, Lhermitte's phenomenon and urinary retention can be seen.

The acute neurotoxicity seen with oxaliplatin is characterised by electrophysiologic evidence motor nerve hyperexcitability, and the findings are similar to the clinical manifestations of neuromyotonia,[7] and has been likened to a channelopathy, ie a disturbance of ion channels crucial to nerve function but not associated with morphologic damage.

This has led to a number of approaches in small series using anticonvulsants (carbamazepine, gabapentin), calcium and magnesium supplements, glutathione and amifostine. All of these appear to have some efficacy but need to be tested more extensively. This may be even more important as oxaliplatin is moved into the adjuvant setting. It may be possible that similar approaches could be used for the other drugs as well.

Central effects of systemic chemotherapy

Chemotherapy may affect the central nervous system in a number of ways, such as acute encephalopathy, that is often reversible, or a chronic CNS toxicity that may be additive with radiotherapy, such as with methotrexate or intra-arterial chemotherapy. Focal disorders include cerebellar syndromes, such as with high dose cytarabine. Levamisole when combined with 5-FU may cause a multifocal leucoencephalopathy, with enhancing subcortical white matter lesions that can be mistaken for cerebral metastases. Transverse myelopathy may occur with intrathecal therapy, or as mentioned above, Lhermitte's phenomenon may be seen with oxaliplatin. Of interest recently neuropsychologic deficits have been reported in patients in association with standard chemotherapy. This is controversial but needs more precise data.

It is important to exclude other causes of these syndromes, such as metastases, leptomeningeal malignancy, or metabolic disturbance.

Acute encephalopathy

The encephalopathy may be characterised by delirium, myoclonus or seizures.

Cisplatinum has been associated with an acute encephalopathy that may include seizures and focal signs such as cortical blindness, with characteristic MRI appearances of white matter T2 hyperintensities, that may include a posterior leucoencephalopathy. Three patients were recently described,[8] including one patient who died and was found at post-mortem to have an ischaemic L temporal lesion, consistent with the hypothesis that endothelial cell damage may be a pathophysiologic event. Cisplatinum encephalopathy is commonly associated with hypomagnesaemia, which also should be treated, and seizure control is important.

Of the mustard alkylating agents ifosfamide is the most neurotoxic.[9] It is usually reversible and associated with delirium and seizures and may occur four to six days after therapy. It usually resolves but persistent symptoms have been reported. Risk factors include renal or hepatic dysfunction, low albumin and pleural or peritoneal effusions. Methylene blue has been reported to be effective in reversing the encephalopathy[10] perhaps by compensating for the mitochondrial toxicity of ifosfamide metabolites.[11]

We have seen a small number of patients with encephalopathy in association with cyclophosphamide who have partially responded to methylene blue. This has been in the context of relatively intense cyclophosphamide dosing. Thus it may be worthwhile considering this drug in other chemotherapy-related acute encephalopathies.

Methotrexate can cause an acute encephalopathy (<48 hours), a subacute encephalopathy in the week following administration and a chronic leukoencephalopathy,[12] most

commonly associated with whole brain radiotherapy. Usually, the last syndrome is not common if the methotrexate is given prior to cranial radiotherapy.

Neurocognitive effects of adjuvant chemotherapy

The long-term neurocognitive effects of whole brain radiotherapy have been reasonably studied, although more needs to be understood. With the increasing use of adjuvant therapy for breast cancer in particular, in a wider group of patients for relatively small gains in cure and survival rates, a more careful assessment of subtle effects of therapies needs to be performed. The field has been well reviewed recently.[13]

These studies are not easy to perform. Detailed neuropsychologic assessment is complex and time-consuming and therefore difficult to perform repeatedly. Other factors may intrude such as anxiety, fatigue, disease progression and hormonal changes. In brief, it can be said that neuropsychologic deficits have been found in patients given adjuvant chemotherapy that are not seen in breast or lymphoma patients treated with local therapy, or compared to healthy controls. There is not a close correlation between cognitive changes measured and recognised quality of life measurements.

As a result, longitudinal studies are now being performed. Screening tools sensitive to change such as Cogstate (www.cogstate.com) are being used in studies in Australia. It is important to stress that these effects do not equate with "brain damage" (Darby, personal communication).

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Investigation and management of paraneoplastic neurological syndromes

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Paraneoplastic neurological syndromes (PNS) are rare, but severely debilitating complications of cancer. These disorders are a non-metastatic phenomenon and are considered to have an immune-mediated aetiology. In 1964 Wilkinson first identified complement-fixing antibodies in the serum of four individuals with cancer who were also affected by sensory neuropathy and proposed that:

"the tumour in a patient with sensory neuropathy may contain antigenic determinants not present in other tumours, and that these determinants are shared by some constituent of the central nervous system (CNS). An immune reaction against such tumour determinants might then incidentally cause damage to the CNS".[1]

This hypothesis has proved to be correct since it has subsequently been confirmed that tumours from affected individuals aberrantly express neuronal antigen. However, neuronal antigens are frequently expressed by tumours that are not complicated by PNS and the effector mechanisms that result in neurological dysfunction have not been defined in the majority of instances. A more comprehensive explanation on the current theories of the immunopathogenesis of PNS can be found elsewhere[2,3] and the focus of this article is to summarise diagnostic and therapeutic aspects in the clinical investigation and management of PNS.

Diagnosis of paraneoplastic neurological syndromes

In two-thirds of cases affected individuals will present with a neurological syndrome prior to diagnosis of the associated malignancy. PNS are a clinically heterogeneous group of disorders with subacute sensory neuropathy (+/- encephalomyelitis), cerebellar dysfunction (+/- brainstem syndrome) and limbic encephalitis being the most frequently encountered disorders. However, virtually every neurological syndrome from Parkinsonism to gastrointestinal dysmotility syndromes has been reported as a paraneoplastic complication of cancer.

When presented with a patient with an unexplained neurological disorder there are often obvious clues in the history to suggest that a neurological syndrome has a paraneoplastic aetiology. For example, a history of smoking and weight loss is typically indicative of an associated lung cancer. Nevertheless, in other cases there is frequently nothing in either the history or examination to alert the investigating physician to the presence of an underlying malignancy, notably even disseminated ovarian malignancy in patients presenting with a subacute cerebellar syndrome can frequently be asymptomatic at the time of presentation with neurological dysfunction. Furthermore, conventional imaging modalities often provide equivocal results and therefore, a definitive diagnosis often rests upon the detection of "paraneoplastic anti-neuronal antibodies" within the serum of affected individuals.

Routine laboratory testing for paraneoplastic anti-neuronal

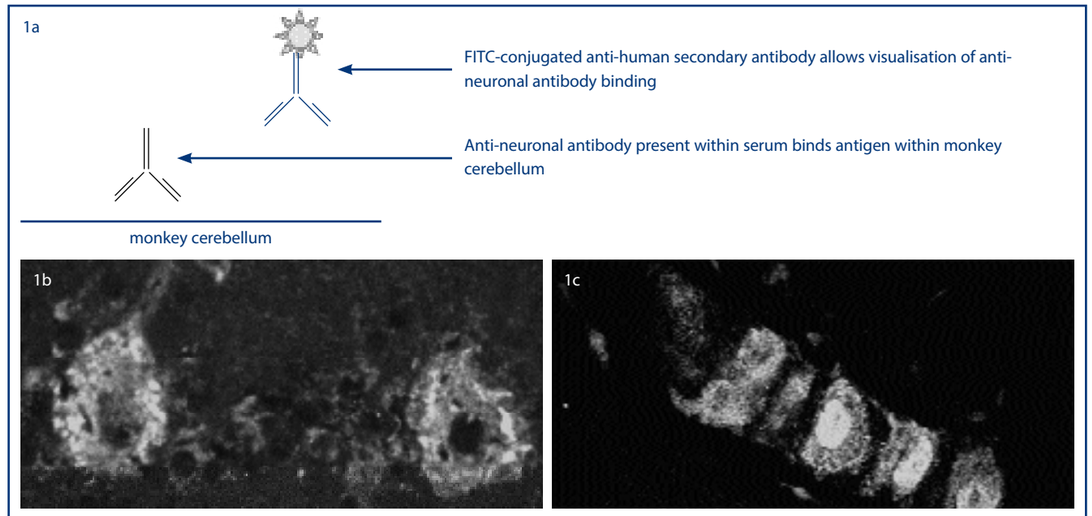

Figure 1: a. Human serum is incubated on monkey cerebellum, after washing off any unbound antibodies, antibody with specific binding to neuronal antigen is detected using a FITC-conjugated secondary antibody that can be visualised under a fluorescence microscope. b. APCA-1 – antibody binds to a Purkinje cell cytoplasmic antigen – confirmed as anti-Yo antibody by western blot against recombinant antigen. c. ANNA-1 – antibody binds to an antigen that predominantly located in the neuronal nucleus, but is absent from the nucleolus. Some cytoplasmic staining is also observed. Antibody confirmed as anti-Hu by western blot against recombinant antigen. (Figures b and c reproduced from Advanced Atlas of Autoantibody Patterns with permission, courtesy of Professor AR Bradwell, Department of Immunology, University of Birmingham)

antibodies initially involves testing of patient serum using indirect immunofluorescence (or immunohistochemistry) (figure 1a). Since paraneoplastic antibodies react with antigens that in most cases are specifically expressed in neurological tissues (the Ma1 antigen is additionally expressed in the testis) an appropriate neurological tissue (eg monkey cerebellum) is probed using patient serum and anti-neuronal antibody reactivity is detected using a labeled secondary anti-human antibody that allows visualisation of specific antibody binding. The tissue distribution of target antigen determines the pattern of antibody binding observed on indirect immunofluorescence. For example, APCA-1 is an acronym for anti-Purkinje cytoplasmic antibody (figure 1b) and ANNA-1 is anti-neuronal nuclear antibody (figure 1c). However, the gold standard for the confirmation of paraneoplastic antibody specificity detected using indirect immunofluorescence is western blot of the patient serum against defined recombinant neuronal antigen. The majority of paraneoplastic antigens observed by immunofluorescence methods have been identified by using serum from patients with PNS to screen cerebellar cDNA libraries: the nomenclature preferred by most investigators for paraneoplastic antibodies refers to the target antigen (eg Hu, Yo, Ri); antigens being named according to the first two letters of the surname of the patient whose serum was used to screen the cerebellar cDNA library and define the antigen.[4]

Although some investigators argue that paraneoplastic anti-neuronal antibodies can be identified by their characteristic pattern of staining observed on indirect immunofluorescence alone it is now apparent that several antibodies of different specificity react with target antigens, which have a similar distribution. For example, APCA-1, PCA-2, and anti-Tr each react with a Purkinje cell cytoplasmic antigen. Failure to define the appropriate antibody specificity by western blot may lead to formulation of an inappropriate plan of investigation, since not only does identification of paraneoplastic antibodies within the serum of a patient presenting with an apparently idiopathic neurological syndrome define the paraneoplastic aetiology of the disorder, but knowledge of the antibody specificity can assist the physician in the search for the underlying tumour (table one).

There are a number of other issues in the interpretation of paraneoplastic antibody results that are potential traps to the unwary. Firstly, paraneoplastic antibodies are only detected in 40% of PNS cases. Secondly although paraneoplastic antibodies are a specific marker for an underlying malignancy the HuD antigen, a marker of subacute sensory neuropathy and encephalomyelitis, is expressed by all small cell lung cancers (SCLC) and approximately 15% of SCLC patients will harbour low-titre (<1:500) anti-Hu antibodies in the absence of neurological dysfunction. Interestingly this subgroup of patients is more likely to have limited disease stage, complete response to therapy and longer survival.[5]

In patients that are seropositive for paraneoplastic antineuronal antibodies and in seronegative patients in whom a paraneoplastic neurological syndrome is suspected, a number of studies have now been able to demonstrate the usefulness of [^{18}F] fluoro-2-deoxyglucose positron emission tomography (FDG-PET) when conventional imaging techniques are negative or provide equivocal results. In a study of 43 patients suspected of having a PNS in whom no tumour was identifiable by conventional imaging or bronchoscopy, a hypermetabolic focus suggestive of malignancy was identified in 16 cases. Although a false-positive scan was obtained in a patient with Guillain-Barré syndrome and negative studies were observed in two patients with anti-Hu antibodies,[6] thereby alluding to some limitations of this investigation modality, FDG-PET is generally proving to be a valuable tool in the tumour diagnosis of patients suspected to have a PNS. Recent advances that acquire and fuse FDG-PET and CT data sets will further assist in precisely defining the anatomical site of malignancy.

Treatment of patients with paraneoplastic neurological syndromes

In the two-thirds of patients that present with a neurological syndrome prior to diagnosis of malignancy it is clearly imperative

Table 1: Some paraneoplastic anti-neuronal antibodies and their clinical associations

Antibody	Also termed	Antigen	Neurological syndrome	Associated tumours
Anti-Hu	ANNA-1 Type IIa	HuD Neuronal nuclear	Paraneoplastic encephalomyelitis/ subacute sensory neuropathy	Small cell lung cancer (80%) Neuroblastoma
Anti-Yo	APCA-1	cdr 62, 34 Purkinje cytoplasmic	Cerebellar degeneration	Ovary-gynaecological Breast
Anti-Ri	ANNA-2	Nova1,2 Neuronal nuclear	Brainstem-cerebellar (Opsoclonus – 50%)	Breast (50%)
Anti-Ma1		Ma1,2 Neuronal nucleolar	Brainstem-cerebellar	Various
Anti-Ma2	Anti-Ta	Ma2 Neuronal nucleolar	Brainstem-cerebellar/limbic	Testis
Anti-Tr		Purkinje cytoplasmic	Cerebellar	Hodgkins
Anti-GluR		Glutamate receptor	Cerebellar	Hodgkins
Anti-retinal		Recoverin Photoreceptors	Retinopathy	Small cell lung cancer

to establish tumour diagnosis, and in those patients in whom a diagnosis of cancer is already established the onset of the neurological syndrome may coincide with disease recurrence. Therefore the onset of a PNS should prompt rapid investigation and instigation of appropriate anti-tumour therapy as soon as possible. In addition to treatment of the underlying malignancy in some cases successful tumour treatment is associated with beneficial effects on the neurological syndrome. This is illustrated by a study in which 51 patients with small cell lung cancer (SCLC), subacute sensory neuropathy/encephalomyelitis and anti-Hu antibodies received conventional SCLC treatment with 26 receiving additional immunotherapy to treat their neurological syndrome. Stabilisation of neurological symptoms was witnessed in 70% and complete response to tumour therapy was the only predictor of stabilisation of neurological symptoms.[7] Even more striking results have been observed in the treatment of limbic encephalitis associated with testicular cancer and anti-Ma antibodies, with one study reporting complete resolution and partial response of neurological symptoms in seven patients with anti-Ma antibodies. Notably the improvement observed in all six cases with testicular cancer correlated with a complete response to tumour therapy.[8]

It remains to be established whether immunotherapy has any significant role to play in the treatment of neurological dysfunction in patients with PNS for several reasons. Firstly, PNS have been reported to improve spontaneously, although this is an infrequent observation. Secondly, PNS are rare disorders making it difficult to organise placebo-controlled, randomised, double-blinded trials. Finally, PNS are a heterogeneous group of disorders and may not all respond in the same way to a particular immunotherapy regimen. Nevertheless, there is a general consensus that immunomodulatory therapies are ineffective despite numerous case reports of neurological improvement following corticosteroids, ivIg, plasma exchange and cyclophosphamide. While one study has noted that administration of tacrolimus markedly reduced the number of activated T cells within the CSF and peripheral blood of three patients with paraneoplastic cerebellar degeneration, no significant arrest in progression of neurological disability was observed.[9]

The results of the largest trial of immunotherapy in PNS to date recently have been published.[10] This well-designed prospective trial included 20 patients with PNS after exclusion of those patients that were neurologically stable, those with chronic indolent disease and those with long-standing neurological deficits considered to be irreversible. It was planned that all 20 patients receive a total of five plasma exchanges. The first treatment arm composed of 10 patients without evidence of active malignancy who were seropositive for paraneoplastic antibodies or had a cancer that did not require chemotherapy. This group was administered cyclophosphamide, however, in six out of 10 patients the six-month course could not be completed mainly due to profound leucopaenia. The second group of 10 patients received plasma exchange and standard chemotherapy. In total 10 of the 20 patients improved or stabilised with no significant differences between the two groups. The remaining patients' neurological status worsened and four died prior to the six-month study endpoint. On the basis of this study it is difficult to evaluate the role of plasma exchange and it should be noted that four of the 20 patients failed to complete the planned five exchanges.

My own practice is to administer plasma exchange to cases of limbic encephalitis in which dramatic improvements have been observed; otherwise patients receive a trial of ivIg.

Prognosis of paraneoplastic neurological syndromes

It is a devastating situation for patients to be faced with not only the prospect of cancer, but also progressive neurological dysfunction. Nevertheless, the previous section highlights that neurological deterioration might be arrested following successful tumour treatment. Furthermore, it is widely believed by investigators of PNS that affected patients have an improved tumour prognosis since it is thought that the immune response resulting in neurological dysfunction is also eliminating tumour cells aberrantly expressing neuronal antigen. This hypothesis of natural tumour immunity is based on some laboratory evidence[11] and a number of clinical observations. For example, in one study of patients with anti-Hu antibodies a tumour could not be identified even with careful post mortem examination in 16.5% of cases.[12] However, there are numerous ways that tumours can evade immune surveillance and the report of Keime-Guibert et al[7] observed patients with subacute sensory neuropathy/encephalomyelitis and SCLC had a median survival similar to that observed in SCLC patients without neurological dysfunction. Nevertheless, a higher probability of survival of PNS cases at 30 months in this study indicates that there is a subgroup of subacute sensory neuropathy/ encephalomyelitis patients with improved overall prognosis.

In patients with paraneoplastic cerebellar degeneration (PCD) and anti-Yo antibodies an underlying gynaecological malignancy carries a poor prognosis. The study of Rojas et al,[13] included 18 patients with PCD and anti-Yo antibodies and in 15 metastatic disease was evident at presentation and tumour progression was the cause of death in just over half of the cases. Interestingly, patients with breast cancer had a significantly better prognosis than those with gynaecological malignancy and in my own series of eight anti-Yo associated PCD cases a similar improved prognosis was observed in patients with breast cancer. Furthermore, in support of the tumour immunity hypothesis metastatic breast cancer may occur in PCD patients in the absence of a detectable primary lesion even with five years of follow up.

Conclusion

Despite being rare neurological complications of cancer almost all neurologists and oncologists will encounter patients with PNS. PNS are typically subacute syndromes and most neurological deficits once established are irreversible. Since successful treatment of the underlying malignancy can arrest neurological deterioration it is important that the diagnosis of PNS is rapidly established and anti-tumour treatment initiated immediately. The more widespread availability of FDG-PET coupled to paraneoplastic antibody testing can significantly improve the speed of diagnosis, and considered application of test results can potentially have profound effects on patient morbidity, eg Rosnefeld et al reporting that a partial improvement in neurological function was observed in two patients with progressive neurological deterioration who underwent orchidectomy because of positive testing for Ma2 antibodies and "minimal abnormalities on testicular ultrasound".[8]

References

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REPORTS

Support for research 2004

The state and territory cancer organisations, which comprise The Cancer Council Australia, are the major sponsors of cancer research and related activities in Australia. Grants are made following a competitive, peer-reviewed assessment from funds derived from donations and bequests.

In 2004 the value of these grants is $23.5 million.

In addition, the grants for breast cancer research made by the National Breast Cancer Foundation are listed. The Foundation has been established by the Federal Government, with an independent Board of Trustees to encourage research in all aspects of breast cancer.

THE CANCER COUNCIL AUSTRALIA

Research grants

D Roos Department of Radiation Oncology Royal Adelaide Hospital	A phase III international randomised trial of single versus multiple fractions for re-irradiation of painful bone metastases	$40,000
T Corica, D Joseph Department of Radiation Oncology Sir Charles Gairdner Hospital	Targeted intraoperative radiotherapy for early breast cancer	$20,000
TOTAL RESEARCH FUNDED		$60,000

THE CANCER COUNCIL ACT

Research grants

R Stuart-Harris, D Byrne ANU Medical School and The Canberra Hospital	Coping styles and severity of toxicity from adjuvant chemotherapy for early breast cancer	$29,000
D Yip, P Craft, R Stuart-Harris, D Leong, A Davis Medical Oncology Unit The Canberra Hospital	A clinical trials cancer research program in the ACT	$32,000
Medical Onoclogy Unit The Canberra Hospital	Scalp cooling equipment for the prevention of alopecia	$11,250
A Gardner, M Eggert The Canberra Hospital and University of Canberra Research Centre for Nursing Practice	A post-intervention consumer satisfaction survey in the heamotology/oncology unit	$3,304
The Cancer Council NSW	Cancer Trials NSW	$10,000
TOTAL RESEARCH FUNDED		$85,554

THE CANCER COUNCIL NEW SOUTH WALES

Research grants

M Stockler University of Sydney	The ZEST trial: A double-blind, placebo-controlled trial of Zoloft's Effects on Symptoms and survival Time in advanced cancer	$65,425
V Ahern Westmead Hospital	A phase III study of regional radiation therapy in early breast cancer	$38,362
H Gurney Westmead Hospital	The timing of androgen deprivation in relapsed or non-curable prostate cancer patients	$10,650
R Reddel Children's Medical Research Institute	Functions of ALT-Associated PML Bodies	$157,750
C Lean University of Sydney	Improved management of thyroid disease by the correct pathological diagnosis obtained non-invasively by magnetic resonance at 3 tesla	$150,000
G Halliday University of Sydney	The role of UVA in human skin carcinogenesis	$99,250
B Meiser University of New South Wales	A randomised trial of a decision aid for genetic testing for hereditary cancer	$48,325
H Mitchell University of New South Wales	The role of helicobacter pylori infection and host cytokine polymorphisms in the aetiology of gastric cancer	$110,366
Total research grants		$680,128

Continuing research grants

P Hogg University of New South Wales	Tumour angiogenesis	$216,000
G Marshall University of New South Wales	Defining the cause and improving the treatment of childhood neuroblastoma	$335,000
R Sutherland The Garvan Institute of Medical Research	Steroid and growth factor signalling in the pathophysiology of breast and prostate cancer	$400,000
J Stevens Southern Cross University	Sentinel node vs axillary clearance trial	$14,000
S Tangye Centenary Institute of Cancer Medicine and Cell Biology	Lymphocyte activation and anti-tumour immunity mediated via SAP-associating surface receptors in health and disease	$70,000
R Lock University of New South Wales	Molecular mechanisms of drug resistance in childhood acute lymphoblastic leukaemia	$71,649
Q Dong University of Sydney	The role of FHL1 and SPINK1 in androgen-independent prostate cancer	$60,000
R Mason University of Sydney	Role of 1,25dihydroxyvitamin D3 in photoprotection	$70,000
C Mountford University of Sydney	MRI/MRS applied to breast cancer detection, diagnosis and prognosis	$70,000
M Tattersall University of Sydney	When the treatment goal is not cure: A randomised trial of decision aids in patients with incurable metastatic cancer	$86,200
B Henderson University of Sydney	Regulation of beta-catenin nuclear trafficking in cancer	$80,000
R Lock University of New South Wales	Targeting angiogenesis signalling pathways in childhood acute lymphoblastic leukaemia	$80,000
A Grulich University of New South Wales	Cancer in dialysis patients and kidney transplant recipients: Incidence, risk factors and survival	$72,400
P Hersey Newcastle Mater Misericordiae Hospital	Sensitisation of human melanoma to killing by the immune system	$139,620
R Ward University of New South Wales	The significance of CpG island methylation in the pathogenesis of hyperplastic polyps and colorectal cancer	$135,000
A deFazio Peter MacCallum Cancer Institute	Molecular epidemiology of ovarian cancer study – WA, Tasmania and a national clinical follow-up core	$69,500
J Kirk Peter MacCallum Cancer Institute	kConFaB: A consortium for research on familial breast cancer	$57,000
Total continuing research grants		$2,026,369

Career development research fellowship

G O'Neill Children's Hospital Westmead	Cas proteins and breast cancer cell response to chemotherapy	$150,000
To be announced		$50,000
Total research fellowships		$200,000

Other research programs

Cancer Trials NSW	$1,205,000
Cancer Epidemiology Research Unit	$881,600
Cancer for Health Research & Psycho-Oncology	$595,000
Hereditary Bowel Cancer Registers	$218,500
Quality Cancer Research Project	$350,000
Strategic Research Projects	$83,393
Total other research programs	$3,333,493
TOTAL RESEARCH FUNDED	$6,239,990

Reports

THE CANCER COUNCIL SOUTH AUSTRALIA

Research grants

J Ainslie, W McCarthy, B Burmeister, M Smithers, J Thompson, M Henderson Division of Radiation Oncology, Peter MacCallum Cancer Institute	A randomised clinical trial of surgery versus surgery plus adjuvant radiotherapy for regional control in patients with completely resected macroscopic nodal melanoma	$6,002
D Bowtell, A deFazio, M Davy Department of Research, Peter MacCallum Cancer Institute	Molecular epidemiology of ovarian cancer: Australian ovarian cancer study – Western Australia, Tasmania and a national clinical follow-up core	$36,000
B Chua, D Joseph, J Harvey, V Ahern Department of Radiation Oncology, Peter MacCallum Cancer Institute	A phase III study of regional radiation therapy in early breast cancer	$23,179
L Coles Hanson Centre for Cancer Research, IMVS	Identification of mechanisms to regulate VEGF expression in cancer cells	$60,984
G Duchesne, N Spry, A Stapleton, H Gurney, E Beller Division of Radiation Oncology, Peter MacCallum Cancer Institute	The timing of androgen deprivation in relapsed or non-curable prostate cancer patients	$10,650
A Evans School of Pharmaceutical Molecular and Biomedical Sciences, University of South Australia	Development of a structure activity relationship for the chemopreventive actions of non-steroidal anti-inflammatory drugs	$67,503
A Evdokiou, D Findlay, B Coventry Department of Orthopaedics and Trauma, Royal Adelaide Hospital	A novel non-toxic approach to bone cancer therapy	$62,808
G Forbes, F Macrae, P Bampton, J Edwards Department of Gastroenterology and Hepatology, Royal Perth Hospital	A comparison of screening tests for colorectal neoplasia in average risk asymptomatic subjects	$20,949
J Gamble, C Hahn, M Vadas Vascular Biology Laboratory, Division of Human Immunology, IMVS	Characterisation of a novel angiogenesis gene endomorphin	$59,980
G Gill, J Kollias, M Bochner Department of Surgery, University of Adelaide	Sentinel lymph node biopsy versus axillary clearance in operable breast cancer	$23,208
M Guthridge, A Lopez Hanson Centre for Cancer Research, IMVS	Role of the 14-3-3 family of proteins in human GM-CSF and IL-3 receptor signalling in leukaemic cells	$54,505
D Horsfall, W Tilley Dame Roma Mitchell Cancer Research Laboratories, Hanson Institute	Versican: A cell motility-promoting proteoglycan pivotal for prostate cancer metastasis	$73,967
Y Hu, G Young, R Le Leu Flinders Centre for Digestive Health, Department of Gastroenterology, Flinders Medical Centre	Do dietary interventions protect in a p53 deficient model of colorectal tumorigenesis?	$59,821
S Kumar Department of Haematology, Hanson Institute, IMVS	Mechanism of caspase-2 activation and its regulation during apoptosis	$69,500
M Lardelli Discipline of Genetics, School of Molecular and Biomedical Science, University of Adelaide	The functions of different presenilin isoforms in cancer	$71,496
I Lewis, R D'Andrea Division of Haematology, IMVS	The role of bone morphogenic proteins in the ex vivo expansion of cord blood derived haemopoietic stem cells	$61,080
G Lindeman, D Amor, J Kirk, G Suthers, J Goldblatt Victorian Breast Cancer Consortium Laboratory, Walter and Eliza Hall Institute	KConFaB: A consortium for research on familial breast cancer	$57,000
A Bruce Lyons, T Hughes Division of Haematology, IMVS	Analysis of the biology of mutant forms of BCR/ABL resistant to the tyrosine kinase inhibitor imatinib (Glivec)	$62,189
A Morley, S Grist Department of Haematology and Genetic Pathology, Flinders Medical Centre	Mitochondrial mutations in clonal haematological disorders	$71,639
T Price, J Olynyk, D Crawford Department of Medical Oncology, The Queen Elizabeth Hospital	Adjuvant interferon and/or celecoxib for hepatoma	$14,900
R Richards Department of Molecular Biosciences, University of Adelaide	Chromosomal fragile sites: The role of cis-acting elements and trans-acting factors in DNA instability in cancer	$65,041
Z Rudzki, G Cheetham Division of Molecular Pathology, IMVS	A new technique to simplify gene expression studies in breast cancer	$65,783
M Stockler, N Wilcken, J Turner, D Wyld, M Byrne, A Nowak, B Koczwara, T Healey NHMRC Clinical Trials Centre, University of Sydney	The ZEST trial of a double-blind placebo-controlled trial of Zoloft's effects on symptoms and survival time in advanced cancer	$24,400
M Whitelaw, J Gorman, D Peet Molecular Biosciences, University of Adelaide	Role of the hypoxia inducible factor in tumourigenesis	$61,000
J Woodcock Division of Human Immunology, Hanson Institute	Novel activation of cAMP-dependent kinase regulates 14-3-3 dimerisation and cell survival functions	$69,500
Total research grants		$1,253,084

Senior fellowships

C Ricciardelli, University of Adelaide	$72,000
S Stephenson, The Queen Elizabeth Hospital	$72,000
Total senior fellowships	$144,000

Fellowships

A Evdokiou, Hanson Centre	$62,000
G Buchanan, University of Adelaide	$62,000
R Gibson, Royal Adelaide Hospital	$62,000
Total fellowships	$186,000

W Bruce Hall Cancer Research Fellowship

C Smith, University of Adelaide	$72,000

Peter Nelson Leukaemia Research Fellowship

R D'Andrea, Child Health Research Institute	$77,000

Other research grants

Centre for Cancer Control Research	$459,647
Chair in Cancer Care – I Olver	$100,000
Travel grants	$30,000
Distinguished visitors	$15,000
Student vacation scholarships	$15,000
The Freemasons Cancer Research Scholarship (1)	$25,000
Data Managers Program	$80,000
Prostate Data Managers Program	$25,000
Radiation therapy scholarships (2)	$4,000
Total other research grants	$753,647
TOTAL RESEARCH FUNDED	$2,485,731

THE CANCER COUNCIL TASMANIA

Research grants

A Venn Menzies Centre for Population and Health Research	Skin cancer and non-Hodgkin's lymphoma: What is the risk of developing both primary cancers in Tasmania?	$10,000
A Venn Menzies Centre for Population and Health Research	A pilot study to study risk factors for development of second and subsequent non-melanoma skin cancers	$18,000
P Blomfield Royal Hobart Hospital	Molecular epidemiology of ovarian cancer: Australian ovarian cancer study – Western Australia, Tasmania, and a national clinical follow up	$30,000
D Woods Palliative Care, Launceston	A multi-centre randomised double-blind controlled trial of oxygen vs: air for the relief of breathlessness in terminally ill patients with intractable dyspnea and Pa02 greater then 55mmHg	$15,000
D Amor Royal Hobart Hospital	KconFab: The Kathleen Cuningham Consortium for Research into familial aspects of breast cancer	$10,000
G Woods University of Tasmania	Immunosuppression by carcinogen induced immature dendritic cells: Gene activation and intervention strategies	$30,000
S Gauden Launceston General Hospital	Randomised double blind trial of Amifostine vs placebo for radiation/induced xeroxtomia in head and neck cancer	$10,000

D Byram Launceston General Hospital	Randomised study of radiation therapy or ChemoRT to palliate symptoms of advanced oesophageal cancer	$1,180
R Lord University of Tasmania	Further analysis of breast cancer using Proteomics	$25,000
Total research grants		$149,180

Funded by David Collins Leukaemia Foundation (amount not included in total research funded)

A Holloway University of Tasmania	Regulation of gene expression by the AML 1 transcription factor in myeloid cells	$28,380

Jeanne Foster scholarships

A Tulumovic Royal Hobart Hospital	To do a post graduate diploma in oncology nursing through La Trobe University	$900
T Taylor Royal Hobart Hospital	To do a post graduate diploma in oncology nursing through La Trobe University	$900
H Tubb, S Pracy Launceston General Hospital	To attend and present a paper at the New Zealand Institute of Medical Radiation Therapist conference	$1,500
J Dalgleish	To attend the 12th "Reach to Recovery" International Conference for Breast Cancer Support Services in Lisbon, Portugal, 2004	$1,500
A Neville	To attend the annual conference of the professional body of radiation therapists in Cairns, 2004	$500
D Walshe	To enrol in a 12 month course, the role of stomal therapy nurse, through the NSW College of Nursing	$1,000
J Hall	To attend the National Breast Care Nurses Conference in Brisbane, 2004	$250
L Cleary	Currently enrolled in the University of Sydney's School of Medical Radiation Services – to fund Current Issues in Medical Radiations	$500
Total Jeanne Foster scholarships		$7,050

Other research grants

S Roper Royal Hobart Hospital	Athena Foniadakis Leukaemia Scholarship for professional development in cancer control	$5,000
C Knipe Holman Clinic, Royal Hobart Hospital	Athena Foniadakis Leukaemia Award	$2,000
L Bingham, S Wilson	The Advocate Athol Meyer Award – for excellence in media coverage of an issue cancer control	$1,000
Launceston General Hospital and Royal Hobart Hospital	Clinical trial data managers	$39,000
I Robertson Clifford Craig Medical Research Trust	Tasmanian Familial Bowel Cancer Registry	$16,680
To be announced	Phd Scholarship in cancer and chronic disease prevention and management in rural areas	$24,000
To be announced	Tasmanian Accord Workshop for new researcher	$2,500
P Blomfield Royal Hobart Hospital	Gynaecological cancer outcome data collection	$5,000
Total other research grants		$95,180
TOTAL RESEARCH FUNDED		$251,410

THE CANCER COUNCIL VICTORIA

Research grants

U Ackermann, H Tochon-Danguy, G O'Keefe Austin Health	[^{11}C] AG1478 - A potential PET tracer for the molecular imaging of the EGF receptor in glioblastoma multiforme	$65,000
R Anderson Peter MacCallum Cancer Centre	Caveolin-1 regulation of breast cancer growth and metastasis	$65,000
D Bowtell, A de Fazio, D Wyld, D Whiteman, D Gertig, M Friedlander, P Harnett, M Davy, P Blomfield, N Zeps Peter MacCallum Cancer Centre	Molecular epidemiology of ovarian cancer: Australian ovarian cancer study - Western Australia, Tasmania and a national clinical follow-up core	$60,000
I Campbell Peter MacCallum Cancer Centre	Molecular and functional analysis of the chromosome 7q31 tumour suppressor gene ST7	$70,000
I Campbell, K Mitchelhill, A Dobrovic, G Rice, M Quinn, N Ahmed Peter MacCallum Cancer Centre	Biomolecular fingerprints as early diagnostic indicators of ovarian cancer	$70,000

H Cheng University of Melbourne	Regulation of the tumour suppressor PTEN by phosphorylation and oligomerization	$4,000
P Choong, H Zhou St Vincent's Hospital	Urokinase plasminogen activator and osteoclast systems regulate growth and progression in osteosarcoma	$70,000
B Chua, D Joseph, J Harvey, V Ahern Peter MacCallum Cancer Centre	A phase III study of regional radiation therapy in early breast cancer	$70,000
P Darcy, M Kershaw, J Trapani Peter MacCallum Cancer Centre	Preclinical development of gene-engineered T cells for immunotherapy of cancer	$70,000
G Duchesne, N Spry, A Stapleton, H Gurney, E Beller Peter MacCallum Cancer Centre	The timing of androgen deprivation in relapsed or non-curable prostate cancer patients	$10,650
M Ernst, P Waring Ludwig Institute for Cancer Research	The tumorigenic effect of overexpression of DNA methyltransferases on the intestinal epithelium	$60,000
J Heierhorst St Vincent's Institute of Medical Research	A novel human DNA damage response protein that interacts with the CHK2 and PML tumour suppressors	$60,000
P Humbert, S Russell, H Richardson Peter MacCallum Cancer Centre	The role of mammalian scribble in proliferation and tumourigenesis	$70,000
R Johnstone Peter MacCallum Cancer Centre	Mechanism of action of histone deacetylase inhibitors: novel anti-cancer drugs	$60,000
M Lackmann, P Gibbs Monash University	The role of EphA/ephrin-A interactions in cutaneous melanoma: effects of Eph receptor activation on cell adhesion, mobility and viability during various stages of melanoma progression	$69,000
J Levesque, L Purton Peter MacCallum Cancer Centre	Use of retinoids and inhibitors of endothelial cell adhesion molecules to enhance mobilisation of haemopoietic stem cells by G-CSF	$69,750
G Lindeman, D Amor, J Goldblatt, M Gattas Peter MacCallum Cancer Centre	kConFab: A national consortium for research into familial breast cancer	$55,000
C Mitchell Monash University	Role of the PIPP lipid phosphatase in cell differentiation and polarity	$68,250
S Ngan, S McLachlan, J MacKay, R Fisher Peter MacCallum Cancer Centre	A randomised trial of preoperative radiotherapy for stage T3 adenocarcinoma of rectum	$20,000
S Nutt, L Wu Walter & Eliza Hall Institute of Medical Research	The role of the proto-oncogene PU.1 in haemopoiesis	$60,000
M Plebanski, I McKenzie Austin Research Institute	The role of a novel suppressive T cell subset, Tr1, in breast cancer immunity	$60,000
H Puthalakath Walter & Eliza Hall Institute of Medical Research	Post-translational regulation of the pro apoptotic protein BIM	$55,000
J Rossjohn Monash University	A structural investigation into the role of the alpha-v beta-3 integrin in cancer	$69,000
M Sim, G Benke Monash University	Pesticide exposure and cancer in fruit growers and orchardists	$40,000
D Thomas, M Trivett Peter MacCallum Cancer Centre	Interactions between cell cycle and differentiation processes in normal and malignant osteoblasts	$66,000
T Tiganis Monash University	Protein phosphatases and mitosis	$60,000
J Villadangos Walter & Eliza Hall Institute of Medical Research	Mechanisms of cross-presentation in dendritic cells	$60,000
E Vincan, W Phillips Peter MacCallum Cancer Centre	FZD7 signalling in colon cancer	$60,000
J Visvader Victorian Breast Cancer Research Consortium	SOCS genes in the mammary gland and other organs – potential tumour suppressor genes?	$30,000
A Ward Deakin University	Isolation and characterisation of leukaemia mutants in zebrafish	$60,000
Total research grants		$1,706,650

Post-doctoral research fellowships

L Coultas, Walter & Eliza Hall Institute of Medical Research	$29,250
J Irving, Monash University	$29,250
N Crowe, University of Melbourne	$58,500
V Marsden, Walter & Eliza Hall Institute of Medical Research	$58,500
Total post-doctoral research fellowships $175,500	

Postgraduate research scholarships and vacation studentships

J Becanovic, Monash University	$21,150
M Wall, Peter MacCallum Cancer Centre	$27,150
L Dow, Peter MacCallum Cancer Centre	$21,150
H Gan, Ludwig Institute for Cancer Research	$27,150
K Horan, Monash University	$21,150

E Lee, Walter & Eliza Hall Institute of Medical Research	$22,150	
M Loughrey, Peter MacCallum Cancer Centre		$27,150
S Onnebo, Deakin University		$22,150
J Stone, University of Melbourne		$13,000
L Williams, Peter MacCallum Cancer Centre		$22,150
Vacation studentships		$20,125
Total scholarships and studentships		$244,475

Fellowships

Carden fellowship D Metcalf, Walter & Eliza Hall Institute of Medical Research	$200,000
Dunlop fellowship A Roberts, Walter & Eliza Hall Institute of Medical Research	$95,447
K & H Fraser fellowship P Colman, Walter & Eliza Hall Institute of Medical Research	$100,000
Lions fellowship (variable) B Anderson, Walter & Eliza Hall Institute of Medical Research	$50,000
Total fellowships	$445,447

Other research grants

Tissue Bank Coordination Project	$154,479
Medical and scientific activities	$59,078
Total other research grants	$213,557

Cancer Control Research Institute programs

Cancer Epidemiology Centre	$761,000
Victorian Cancer Registry	$1,314,000
Health 2000	$389,000
Centre for Behavioural Research in Cancer	$1,046,000
Centre for Clinical Research in Cancer	$1,214,000
VicHealth Centre for Tobacco Control (The Cancer Council Victoria contribution to VicHealth Centre)	$375,000
Total Cancer Control Research Institute programs	$5,099,000
TOTAL RESEARCH FUNDED	$7,884,629

THE CANCER COUNCIL WESTERN AUSTRALIA

Research grants

K White	Randomised controlled trial of nurse led education intervention on sexuality and body image for women with breast cancer	$54,326
T Ratajczak	Steroid receptor associated immunophilins: influence of targeted knockdown and altered expression of oestrogen signalling in breast cancer	$55,000
T Packer	Managing fatigue and improving quality of life of men with prostate cancer	$52,950
D Izon	Genes that perturb the DN to DP transition and their signalling pathways; relevance to T cell leukaemogenesis (two year grant)	$66,000
B Iacopetta	Use of population-based tissue microarrays to identify novel molecular markers of prognosis and response to chemotherapy in colorectal cancer	$55,000
R Donovan	Investigating the salience of the UV scale to West Australians	$42,668
N Zeps, D Bowtell	Molecular epidemiology of ovarian cancer: Australian ovarian cancer study – Western Australia, Tasmania and a national clinical follow-up core (two year multi-state grant)	$109,106
L Kristjanson	Fatigue and functional capacity in women undergoing adjuvant breast radiotherapy	$41,000
B Dix	The role of cell cycle arrest in the regulation of p53 dependent cell death	$20,000
L Abraham	Transcription factor activity in anaplastic large cell lymphoma	$55,000
Total research grants		$551,050

Vacation research assistantship awards

T Rivera	Expression and mutation analysis of the c-myb oncogene in colorectal cancer	$2,000
L La Coste	MCP-1 and receptor in human mesothial and malignant mesothelioma cells	$2,000
S Williams	Gestational breast cancer project: Analysis of unique molecular characteristics using high throughput tissue microrays	$2,000
A Gardiner	Characteristics of potential inhibitors of jun-jun interactions	$2,000
J Wang Wei Poh	A role for PAX3 in metastasis of cutaneous malignant melanoma (CMM)	$2,000
Total vacation research assistantship awards	$10,000	

John Nott travelling fund

E Kliewer	Canadian Cancer Registry visit to School of Population Health, UWA	$5,000
J-L Peix	Attend programs that will be of broad interest to surgeons and physicians involved in endocrine surgery	$4,987
Total John Nott travelling fund		$9,987

Professorial chairs

Chair of Palliative Care Edith Cowan University	$100,000
Chair of Behavioural Cancer Research Curtin University of Technology	$125,000
Chair of Clinical Cancer Research University of Western Australia	$250,000
Total professorial chairs	$475,000

Other research grants

kConFab: A national consortium for research into familial breast cancer	Genetic Services of WA, King Edward Memorial and Princess Margaret Hospitals	$27,000
Children's Cancer Research Fellowship	TVW Institute Child health Research	$15,000
Bone tumour registry		$27,000
Total other research grants		$69,000
TOTAL RESEARCH FUNDED		$1,115,037

QUEENSLAND CANCER FUND

Research grants

C Baldock, YDE Deene, B Healy, A Whittaker, D Schlect	Development of ultrasonic scanner for evaluation of radiotherapy polymer gel dosimetry phantoms	$72,030
D Bowtell, A deFazio, D Wyld, D Whiteman, D Gertig, M Friedlander, P Harnett, P Blomfield, M Davy, N Zeps	Molecular epidemiology of ovarian cancer: Australian Ovarian Cancer Study	$43,220
A Boyd Queensland Institute of Medical Research	The role of Eph protein over-expression in colon cancer metastasis	$70,000
M Brown University of Queensland	Investigating the role of BRCA1 in mammary differentiation and morphogenesis	$72,030
B Chua, D Joseph, J Harvey, V Ahern	A phase III study of regional radiation therapy in early breast cancer	$23,179
J Clements, J Gao, D Nicol	Characterisation of prostatic kallikrein gene expression during crosstalk between osteoblasts and prostate cancer cells: A model for prostate cancer bone metastasis	$70,000
G Duchesne, N Spry, A Stapleton, H Gurney, E Beller	The timing of androgen deprivation in relapsed or non-curable prostate cancer patients	$10,650
I Frazer University of Queensland	Evaluating therapeutic interventions to overcome tolerance to tumour antigen	$72,030
B Gabrielli University of Queensland	Mechanisms of UV induction of the melanoma susceptibility gene product p16CDKN2A	$72,030
F Gardiner, J Clements, T Walsh, J Bartley, J Gorman, A Pettitt	Proteomic approaches to the early detection of prostate cancer	$70,000
A Green, K Horwood, D Wyld, A Clavarino	Comparison of quality of life and standard end-points of chemotherapy in advanced ovarian cancer	$72,030
K Halford, S Steginga, J Scott	Development and evaluation of a self-directed, couple-based coping program "CanCope" for men with early stage prostate cancer and their partners	$72,030
J Hancock, A Harding	A biochemical analysis of MAP kinase pathway activation at the plasma membrane	$70,000
D Hart, K Radford, M Kato	Discovery of breast cancer antigens recognised by cytotoxic T lyjmphocytes for tumour immunotherapy	$70,000
D Hart Mater Medical Research Institute	Purified Blood DC Vaccination with defined Tumour Associate Antigens for Multiple Myeloma	$72,030
N Hayward, G Kay	Mouse models to understand the development of multiple endocrine neoplasia	$72,030
G Hill Queensland Institute of Medical Research	The role of donor T cell derived IL-10 in the enhancement of leukaemia-free survival after allogeneic SCT	$70,000

M Kato Mater Medical Research Institute	DEC-205 C-type lectin receptor-mediated antigen loading to dendritic cells to elicit antigen-specific cytotoxic T lymphocyhte responses	$70,000
A Kelso Queensland Institute of Medical Research	Functional plasticity of memory CD8T cells in a model of tumour immunity	$72,030
R Khanna, J Tellam	Molecular characterisation of genetic variants of LMP1 oncogene from EBV-associated malignancies	$70,000
N Kienzle, A Kelso Queensland Institute of Medical Research	Interleukin 4-driven immune deviation of tumour-specific CTL responses and its implication for tumour clearance	$72,030
D Krause Queensland Institute of Medical Research	The role of the tousled-like kinases in the S-phase checkpoint response	$70,000
M Lavin, N Gueven	Role of ATX/SMG-1 protein in responding to DNA damage and maintaining genome stability	$70,000
G Lindeman, D Amor, J Goldblatt, M Gattas	kConFab: A national consortium for research into familial breast cancer	$70,000
K MacDonald, R Thomas, G Hill	Modulation of graft-versus-host disease by the granulocyte-monocyte lineage	$72,030
G Mann, J Hopper, J Aitken, R Kefford, G Giles, B Armstrong	Australian Melanoma Family Study	$72,030
M McGuckin, A Lopez	Exploiting the discovery of the CA125 gene to improve diagnosis, define targets for immunotherapy and understand the biology of ovarian cancer	$72,030
D Moss, D Chin, J David, S Elliott, M Sherritt	A phase I trial on adoptive transfer of cytotoxic T cells specific for EBV latent membrane proteins (LMP1 and 2) delivered to patients with nasopharyngeal carcinoma	$70,000
J Neuzil Queensland Institute of Medical Research	Cancer cell targeting using receptor-specific peptide adducts with vitamin E analogues	$70,000
J Neuzil, L Baseler, A Azzi	Vitamin E analogues as selective inducers of apoptosis in malignant cells: Mechanisms and potential application	$66,890
P Parsons, G Boyle	Understanding and controlling gene expression pathways relevant to skin cancer	$72,030
S Ralph, A Mellick	Melanoma and resistance to interferon therapy	$70,000
J Simes, T Hugh, V Gebski, S Riordan, M Fink, J Cebon, J Olynyk, D Crawford, T Price	Adjuvant interferon and/or Celecoxib for hepatoma	$27,300
R Sturm University of Queensland	Role of Beta3 integrin induced osteonectin expression in melanoma metastasis	$70,000
A Suhrbier Queensland Institute of Medical Research	Sustained CD8+ T cell effectors for protection against cancer: Their regeneration by novel Kunjim vaccines	$72,030
R Tindle University of Queensland	Novel cancer vaccine delivery using recombinant Hepatitis B surface antigen VLP - and DNA vectors	$70,000
K Tonissen, F Clarke	Extracellular thioredoxin and breast cancer cell invasion	$72,030
I Tonks, G Walker	Investigating pocket protein function in development of cancer	$70,000
F Varghese, B Kelly, P Burnett, G Mitchell, J Turner, M Robertson	The impact of a structured intervention to improve doctors' care of dying patients	$72,030
G Walker, I Tonks, S Pavey, N Hayward, G Kay	Delineation of the key molecular events that underlie melanoma development	$72,030
E Ward, L Cahill	Dysphagia (impaired swallowing) following surgical removal of the larynx: Factors contributing to the swallowing disorder, and the efficacy of intensive physiologically based therapy to improve swallowing outcomes for this population	$43,350
D Young, A Spurdle	Analysis of a novel X-linked gene which interacts with BRCA1 and assessment of its role in breast cancer predisposition	$72,030
K-N Zhao University of Queensland	Using yeast model to study the functional roles of three early genes in the life cycle of bovine papillomavirus type 1	$70,000
Total research grants		$2,843,159

Fellowships and scholarships

Senior research fellow program	M McGuckin, Mater Medical Research Institute and P Webb Queensland Institution of Medical Research	$200,000
Clinical research fellow	To be announced	$36,050
John McCaffrey Research Scholarship in Cancer Control North Queensland	M Nowak, James Cook University	$20,500
Total fellowships and scholarships		$256,550

Epidemiology and behavioural research programs

Cancer Epidemiology Unit	$508,600
Behavioural Research Unit	$426,500
Queensland Cancer Risk Study	$543,300
Prostate Cancer Supportive Care & Patient Outcomes Trial	$320,000
Total epidemiology and behavioural research programs	$1,798,400

Other research grants

QCF/Griffith University: Cancer Support Centre (psychosocial oncology)	$100,000
Familial Adenomatous Polyposis Register	$50,000
Australian Paediatric Cancer Registry	$70,000
Total other research grants	$220,000

PhD program 2004

2004 – 2006
John Earnshaw Scholar 2004
- M Jones, Queensland Institute of Medical Research
- A Ramsay, Queensland University of Technology
- S Mattarollo, University of Queensland

2003 – 2005
John Earnshaw Scholar 2003
- L Packer, Queensland Institute Medical Research
- K Jawerth, Queensland Institute of Medical Research
- E Hacker, Queensland Institute of Medical Research
- R Parlett, Mater Medical Research Institute

2002 – 2004
John Earnshaw Scholar 2002
- M Rinaldis, University of Queensland
- S Joseph, University of Queensland
- L Papp, Queensland Institute of Medical Research

John Earnshaw Scholar 2001
- R Stirling, Griffith University (took one year deferment 2003)

Total PhD program 2004	$228,000
TOTAL RESEARCH FUNDING	$5,346,109

NATIONAL BREAST CANCER FOUNDATION

Research grants

NEW SOUTH WALES		
David Jones Scholarship H Davey, University of Sydney	Communicating information to women about diagnostic tests for breast cancer	$27,500
Estee Lauder Scholarship L Webster, University of Sydney	Determination of diagnostic molecular profiles for intraduct lesions of the breast	$51,200
National Network of Women In Super Scholarship B Thewes, Prince of Wales Hospital	The fertility and menopause-related information needs of younger women with a diagnosis of breast cancer	$51,200
Kathleen Cuningham Research Grant G Mann, Westmead Institute for Cancer	Research Mapping and identification of novel breast cancer susceptibility genes	$106,750
QUEENSLAND		
Kathleen Cuningham Research Grant G Chenevix-Trench, Queensland Institute Medical Research	The role of the ATM gene in familial breast cancer	$77,000
SOUTH AUSTRALIA		
Kathleen Cuningham Research Grant M Bottema, Flinders University of South Australia	Computer-aided detection of invasive lobular carcinoma in screening mammograms	$55,000
Kathleen Cuningham Research Grant G Gill, Royal Adelaide Hospital	Sentinel node biopsy versus axillary clearance in early breast cancer: the SNAC trial	$99,454
VICTORIA		
Breville Scholarship N Fleming, University of Melbourne	Investigation of the role of parathyroid hormone-related protein in breast cancer	$27,500
Goodman Fielder Scholarship Y Antill, University of Melbourne	The use of ductal lavage in defining biomarkers of early breast cancer in high risk women: promoter methylation	$27,500
Career Development Award M Kershaw, Peter MacCallum Cancer Institute	To harness the immune system against cancer by inserting genes into t cells that will endow them with the ability to seek out and destroy cancer cells	$50,000
Kathleen Cuningham Research Grant B Chua, Peter MacCallum Cancer Institute	A phase III study of regional radiation therapy in early breast cancer	$50,670
Kathleen Cuningham Research Grant M Gillespie, St Vincents Institute of Medical Research	Role of osteoprotegerin in breast cancer growth in bone	$83,000

Kathleen Cuningham Research Grant M Jenkins, University of Melbourne	Environmental modifiers of breast cancer risk in carriers of germline mutation in BRCA1 or BRCA2	$50,000
Kathleen Cuningham Research Grant D Kissane, University of Melbourne	The effects of supportive-expressive group therapy on women with metastatic breast cancer	$34,050
Kathleen Cuningham Research Grant B Loveland, The Austin Research Institute	Novel methods of cancer antigen uptake for dendritic cell based immunotherapy of breast and other cancers	$105,000
Kathleen Cuningham Research Grant J Sambrook, Peter MacCallum Cancer Institute	KConFab: A consortium for research on familial breast cancer	$100,000
Kathleen Cuningham Research Grant T Tiganis, Monash University	Regulation of EGF receptor signalling	$80,000
Kathleen Cuningham Research Grant P Xing, The Austin Research Institute	Immunotherapy of breast cancer by targeting a signalling oncoprotein Cripto-1	$100,000
National Network of Women In Super Scholarship R Manaszewicz, Monash University	Enhancing individual autonomy in breast cancer information provision: the role of 'personal outcomes' in the selection, use and quality evaluation of information	$27,500
National Network of Women In Super Scholarship C Nickson, La Trobe University	Modelling the impact of targetted changes to screening intervals in Australian breast-screening programs	$26,800
WESTERN AUSTRALIA		
Kathleen Cuningham Research Grant P Leedman, WA Institute Medical Research	Coregulators and hormone action in breast cancer	$104,500
Kathleen Cuningham Research Grant T Ratajczak, Sir Charles Gairdner Hospital	Immunophilin regulators of estrogen receptor function	$80,000
Kathleen Cuningham Research Grant K White, Edith Cowan University	A randomised controlled trail of low level laser therapy (LLLT) for the treatment of lymphoedema secondary to breast cancer	$11,738
Kathleen Cuningham Research Grant K White, Edith Cowan University	Randomised controlled trial of nurse led education intervention on sexuality and body image for women with breast cancer	$97,000
TOTAL RESEARCH GRANTS		$1,523,362

Research to reality: Translating the evidence.
COSA 30th Annual Scientific Meeting

After a 10-year gap, the Clinical Oncological Society of Australia Annual Scientific Meeting returned to the West, and it was back to the Hyatt once more. In planning the meeting I was conscious to address what seemed to me the raison d'etre of COSA, namely to aim for more umbrella sessions to discuss the big issues for all of us in oncology.

Inevitably this meant that there would be fewer opportunities for break out sessions, but the 'one group-one session' idea was already becoming redundant in light of a multidisciplinary approach to care, as well as the real danger of sessions being poorly attended. We took the decision to create group sessions only where there was a demonstrated interest either by submission of abstracts or by specific request from group representatives.

This latter approach resulted in the inclusion of two new COSA group sessions: neuro-oncology and quality services. The former, organised and beautifully run by the indefatigable and creative team of Fran Boyle and Liz Hovey from Sydney, was well attended and feedback suggested they were important sessions for future inclusion on their own.

The other, regarding the delivery of quality services in cancer, run by Anne Lloyd and Val Noble, became one of the main themes of the entire meeting and was topical given the development of three key initiatives in Australia: the COSA/The Cancer Council Australia/National Cancer Control Initiative Optimising Cancer Care in Australia report; publication of A Clinical Service Framework For Optimising Cancer Care in NSW; and the Department of Health and Ageing's National Service Improvement Framework (NSIF) for Cancer. We were most fortunate that two of our international speakers, Prof David Kerr (Oxford) and Prof Mike Richards (London) – both at the vanguard of such improvement strategies in the UK – were able to come, and more importantly were able to give hugely thought-provoking and entertaining plenary talks. These sessions also saw key Australian perspectives put forward by Patsy Yates, Bruce Barraclough, Tom Reeve and Paul Harnett, demonstrating that Australia has already gone a long way toward meeting the challenge of improved cancer services for the community.

Important initiatives such as the multicentre trials ethics workshop the day preceding the ASM were well attended and received, and indeed the inclusion of a symposium on ethical issues on the first day provided some insights into four very different areas, from getting research protocols through review to how the patient deals with comprehending the nature of being involved in a clinical trial. The personal journey of a cancer survivor always lends a keen reminder of what the issues really boil down to and Sharron Wheeler spoke eloquently about this.

Another important novel session was the inclusion of industry in a group breakout session. Our five guest speakers gave five very different presentations ranging from pipeline development, drug registration issues in Australia, why Australia is offered the trials it gets from industry head office, issues with multiple ethics applications and future investment strategies for oncology in Australia. We were indeed fortunate to have five excellent speakers who provided a seamless session that covered such a broad and hitherto not heard of perspective for a COSA audience. The emphasis on developing a dialogue between physicians and industry, other than via the marketing department, is one I hope will carry through to future COSA ASMs, and has the potential to open up an important forum that is mutually beneficial.

The final day of the COSA ASM 2003 began early with the launch of the National Service Improvement Framework for Cancer by Dr Rosemary Knight at a packed breakfast session. Given this was the morning after the COSA conference dinner this was an excellent turnout and was testament to the importance of this Commonwealth initiative (and in no way to Perth being the most boring capital city in Australia bereft of venues for people to party into the wee hours).

A brain metastases session led on to a superb presentation by Harvey Chochinov (Canada) who illustrated how it is possible to die with dignity for those many who still succumb despite advances in treatment. This highlights the very real need to recognise that there is as much to be done for those who have cancer now, as there in for researching ways to prevent and treat it in the future, and developed further our theme of carefully considering how we think about providing services for those with cancer and their families.

The conference finished with an award to Alan Coates who showed us in an understated and brief review how significant a role he has played in moving Australian oncology into a world-class discipline, paving the way for even greater achievements for the future.

To finish I'd like to thank all those involved who made COSA ASM 2003 what it was. Although there are too many to mention individually, I'd like to especially thank Liz Kenny and all in COSA for their help with the organisation of this meeting, my local committee, and Ruth Lilian and all at Pharma Events for their sterling work in making everything run smoothly. Planning for the 2004 ASM is already well underway and I encourage all who enjoyed the 2003 ASM to continue to attend and support this national forum for excellence in clinical oncology.

Finally I'd like to publicly acknowledge David Joseph, my employer at radiation oncology at Sir Charles Gairdner Hospital, who unstintingly supported my role as convenor and indulged my absences and time spent putting this meeting together.

Nik Zeps
Convenor

Australian behavioural research in cancer

This is a regular feature in Cancer Forum describing behavioural applications in cancer prevention.

Australia has six behavioural research centres: the Centre for Behavioural Research in Cancer (CBRC) of The Cancer Council Victoria, the Centre for Behavioural Research in Cancer Control (CBRCC) at Curtin University of Technology Perth, the Centre for Cancer Control Research (CCCR) of The Cancer Council South Australia, the Centre for Health Research and Psycho-oncology (CHeRP) of The Cancer Council New South Wales, the Centre for Research in Cancer Control (CRCC) of the Queensland Cancer Fund and the Cancer Prevention Research Centre (CPRC) of the University of Queensland.

This report has been compiled by Narelle Mills, CHeRP.

New results

- Centre for Health Research and Psycho-oncology (CHeRP), NSW

Pharmacies on the front line

Nicotine replacement therapies (NRT) such as nicotine patches and gum have been found to be effective as a smoking cessation strategy. Over-the-counter availability of these products places pharmacies in an ideal position to increase uptake of the support required to optimise the effectiveness of NRT. Research suggests that less than half of NRT users report receiving advice or information about NRT from their pharmacist. Exploring the perceptions and practices of pharmacy staff in Australia is critical to assessing the potential effectiveness of over-the-counter NRT and gauging whether additional advice at a pharmacy level is a feasible support option.

Dr Christine Paul and colleagues undertook research to explore the extent of support pharmacies provide NRT purchasers, and the perceived potential of pharmacies to provide smoking cessation support. A sample of 700 NSW pharmacies was selected at random, with pharmacies eligible to participate if they had sold any NRT or Zyban in the previous month. The pharmacist in charge in each selected pharmacy was mailed a primer postcard followed within two weeks by the questionnaire. One mail reminder and then one telephone reminder was provided to non-responders. A response rate of 56.4% was achieved.

The participating pharmacists reported on the type of advice and support provided during their most recent contact with NRT and Zyban purchasers. The results indicate that a substantial amount of information regarding these products is provided in the pharmacy setting. Pharmacists also rated the desirability and feasibility of implementing various forms of opportunistic smoking cessation interventions in their pharmacies. The results suggest there is potential for increasing the levels of smoking cessation support currently provided in community pharmacies.

Funding from the University of Newcastle Early Career Researcher Grants supported this project.

- Centre for Behavioural Research in Cancer (CBRC), VIC

How does active parental consent influence the findings of drug-use surveys in schools?

A study by Victoria White, David Hill and Yuksel Effendi, soon to be published in Evaluation Review, examines the impact of passive and active parental consent procedures on the type of adolescents participating in a school-based survey examining substance use. Schools recruited from a random sample of metropolitan schools were assigned to passive or active parental consent condition. Results showed that participation rates in active consent schools were lower than in passive consent schools for junior students (60% compared with 80%), but not senior students. While consent condition had limited impact on prevalence estimates among older students, younger students estimates of cannabis and ecstasy use were higher in the passive consent condition than the active consent condition. Active consent procedures introduce some degree of selection bias into studies of adolescents' substance use and may compromise the external validity of prevalence estimates produced, especially among younger students.

- Centre for Cancer Control Research (CCCR) and the Tobacco Control Research and Evaluation Program (TCRE), SA

Correct understanding of treatment goals by both patients and their caregivers in the advanced cancer setting. What predicts?

Further findings from the Canberra Cancer Quality of Life Study

Patients who were married and lived in the city were more likely to correctly understand treatment goals when controlling for education and occupation levels, illness course catalogued as crisis, chronic or terminal, ambulatory status and time to death. Caregiver predictors were different and included those: aged under 40; caring for patients with higher education levels; diagnosed with lung cancer; recruited from medical oncology; non-ambulatory; and with less than six months to live.

At week 12, the only variable identified as significant was those caregivers who had stopped work to care. Caregivers who used education materials were more likely to have a correct perception. But those who relied on other health professionals than medical practitioners as an information source were significantly more likely to have an incorrect understanding of treatment goals.

Sun protective behaviours among SA adolescents: Results from the 2002 ASSAD survey

Since 1990, SA has been monitoring the sun protective behaviours of adolescents (aged 12-17 years) via self-reported data collected through the triennial Australian Secondary Students Alcohol and Drugs (ASSAD) survey. Trend analysis suggests that adolescents are becoming more complacent about sun protection. Regular use of hats, sunscreen and cover-up clothing has decreased significantly over the past three to six years. In 2002, 24% of adolescents did not use any form of sun protection on a regular basis, and a further 30% relied on only one form (most often sunscreen). Consequently, rates of sunburn remained high (78% burnt at least once in the previous summer).

Smoking among SA secondary school students: Results from the 2002 ASSAD survey

Smoking prevalence and smoking behaviour were investigated among SA school children in 2002, as part of the triennial Australian School Students' Alcohol and Drugs (ASSAD) survey. In SA, 2839 students from 71 schools participated. Results released in December 2003 revealed that smoking rates in 2002 had virtually halved since 1984. Progress was seen in all measures of smoking (ever tried smoking, smoked in the past: 12 months; 4 weeks; 7 days). The proportion of current smokers had dropped significantly among 16-17 year olds since the previous survey in 1999, while smoking rates among 12-15 year olds were significantly lower in 1999 than in the 1996 survey. Progress was also seen in the proportion of students who reported purchasing their last cigarette.

Evaluation of the 'SA Tobacco Control State Strategy'

TCRE was commissioned by the South Australian Department of Human Services to coordinate an evaluation of the first State Tobacco Control Strategy 1998-2003. The report also compiled evaluation data from the various activities undertaken during the period of the first state tobacco control strategy. The results documented the volume of activities undertaken in tobacco control in SA. In terms of the overall goal of the strategy to 'reduce the prevalence of smoking by 20% or more over five years, particularly among young people and to reduce involuntary exposure to tobacco smoke', significant progress had been made. The report outlined a number of recommendations for the development of the next State Tobacco Strategy.

- Centre for Behavioural Research in Cancer Control (CBRCC), WA

Healthy Business Project

The Healthy Business Project, a pilot project undertaken by The Cancer Council Western Australia and funded by Healthway, was instigated to assist workplaces to facilitate greater health in their employees. Seven organisations were targeted for the project including two small (<89 employees), two medium (90-200 employees) and three large (201+ employees). CBRCC was contracted to conduct focus groups with employees from each of the organisations in late November and early December 2003.

Each focus group was intended as an explorative exercise to suggest the attitudes of employees towards their own health, to identify what was the perceived contribution of their workplace to their health, and to suggest possible ways in which their workplace might contribute positively towards their health. Although the vast majority of participants believed they were of above average or average health and fitness, three-quarters expressed a desire to undertake more behaviours to maintain or improve their health. Most also believed their workplace impacted to a fair extent upon their ability to undertake healthy behaviours. As such participants seemed quite receptive of their employers making concerted efforts to improve the health of employees. The final report included 15 recommendations for employers to adopt in order to improve the physical fitness, diets, smoking and sun-protection behaviours of employees.

Evaluation of the 'Make Smoking History' campaign: Wave 7

In July 2003 The Cancer Council WA launched the seventh wave of its 'Make Smoking History' campaign featuring three advertisements with Jenny, a 42-year-old mother of three, who has terminal lung cancer. These were the same advertisements as in the sixth wave. Random digit dialling telephone surveys were conducted within the Perth metropolitan area. In total, 379 current smokers or recent quitters were surveyed. Unprompted awareness of any 'Make Smoking History' advertising was 59% and prompted awareness was 90%. Of the total sample, 6% had quit, 20% had attempted to quit and 55% had attempted to cut down in the previous month. Overall, the advertisements were far more salient for women, and young women in particular, than men. The campaign continues to achieve at levels similar to previous campaigns.

- Cancer Prevention Research Centre (CPRC), QLD

The PLACE Project (Physical Activity and Localities in Community Environments) with colleagues at the National Centre for Social Applications of Geographic Information Systems is moving on to phase two of data collection. Phase one of PLACE has been successfully managed through to completion by Eva Leslie and her team, with data from over 2,500 households in Adelaide, now linked at the individual household level to data on environmental attributes in local communities. Preliminary analyses suggest that there are associations of walking behaviours with objectively assessed indices of 'walkability'.

- Centre for Research in Cancer Control (CRCC), QLD

Melanoma diagnosis and the effect of screening on depth of invasion of melanoma

The aim of this study, led by investigators Associate Professor Joanne Aitken from the Queensland Cancer Fund, Professor Mark Elwood from the National Cancer Control Initiative and Associate Professor Dallas English from The Cancer Council Victoria, was to describe the modes of presentation and the diagnostic process for melanoma in Queensland; to compare this in patients with thin or thick melanoma at diagnosis and between different histologic types of melanoma; and to assess, using a case-control design, the association between self-screening and screening by doctors, the incidence of thick melanoma and the possible over-diagnosis of thin, biologically non-progressive lesions.

Over 4,000 melanoma patients and 4,000 randomly selected community controls have been interviewed for this study over the past four years. In relation to melanoma diagnosis, preliminary results indicate that 77.6% of melanoma patients in Queensland first attend a GP for investigation of their suspicious lesion and that for over a quarter of these patients, there is substantial delay in first attending a doctor, with an average time of over 3.45 months between when a patient first notices a suspicious spot to an initial doctor visit. Males are more likely to delay than females, and those under 50 years are more likely to delay than those over 50. The case-control analysis is ongoing.

Attitudes, knowledge and practice of colorectal cancer screening among general practitioners in Queensland

Screening for colorectal cancer (CRC) using faecal occult blood testing (FOBT) has been shown to reduce mortality from this disease. A cross-sectional postal survey of approximately 770 Queensland general practitioners (GPs) was conducted state-wide to determine their attitudes, knowledge and current practices in relation to CRC screening, and to examine the predictors of support for a population-based screening program using FOBT. We found 53% of GPs currently recommend the use of FOBT in asymptomatic patients over 50 years and 18.6% recommend colonoscopy in such patients. Approximately 62% agreed that screening with FOBT lowers CRC mortality and 61% agreed that CRC is less advanced when detected by FOBT. Two-thirds would support a population-based program using FOBT. The most common reason for not supporting such a program was the perceived high false positive and false negative rates. GPs were more likely to support a population-based FOBT program if they currently recommend FOBT, know the recommended FOBT screening frequency and believe that FOBT screening lowers CRC mortality. GPs who received two or more CRC screening guidelines from different bodies were less likely to support a FOBT screening program. Despite some confusion over the number and variety of CRC screening guidelines in general practice, support for a population-based FOBT program is reasonably high.

Research in the pipeline

- CHeRP

A qualitative assessment of the needs of long-term cancer survivors

Despite the growing population of people living with a history of cancer, little is known about the ongoing impact cancer has on their lives. One approach to learning more about the later effects of cancer is to assess cancer survivors' perceived needs for help. In 1996-1997 CHeRP developed the Supportive Care Needs Survey (SCNS), a tool assessing cancer patients' perceived needs in the areas of psychological, health system and information, patient care and support, physical aspects of daily living and sexuality needs. While previous descriptive studies have shown that up to half of cancer patients report high levels of unmet needs, recent preliminary data from the NSW Cancer Survival Study has unexpectedly indicated that five-year cancer survivors report few perceived needs compared to those at earlier stages of the cancer journey. This disparity suggests that the current SCNS does not adequately encompass the issues most relevant to long-term survivors.

Allison Boyes and colleagues are undertaking a qualitative study to explore long-term cancer survivors' interpretation of the existing SCNS items, ascertain the relevance of the items at each stage of the cancer journey, identify areas of need not covered by the existing items and determine survivors' preferences for how each perceived need would be best met. A combination of focus groups and semi-structured telephone interviews will be conducted with five-year cancer survivors from each stage of disease, various cancer sites and rural/regional/urban locations.

Results from this study will be used to review the current SCNS and to develop a 'long-term survivors' module to the survey. This module will enable the specific issues faced by long-term cancer survivors to be accurately identified and will provide insight into the types of services and support this particular cancer population requires.

- CBRC

Compliance with legislation restricting smoking in licensed venues in Victoria

Data collection has been completed in a study examining compliance with new smoking restrictions in Victorian licensed and gambling venues, introduced in September 2002. Tessa Letcher and Melanie Wakefield led the study, designed to evaluate the implementation of the reforms by observing compliance in a range of venues. Observers visited 80 licensed gaming and non-gaming venues around Melbourne and monitored compliance with smokefree policies. Data entry has been completed and analysis and reporting is underway. The results will serve to evaluate the effectiveness of the smokefree policies and identify any particular areas of difficulty in implementing the reforms.

Effects on youth of exposure to retail cigarette advertising and cigarette pack displays

Data collection has been conducted for a study designed to assess potential effects of in-store cigarette advertising and cigarette pack displays on youth perceptions of ease of access to cigarettes, perceived approval of smoking, perceived prevalence of peer and adult smoking, perceived harm from tobacco and perceived popularity of cigarette brands. Participants aged 14-15 years were recruited using a school-based convenience sample. Students viewed a range of photographs depicting various in-store point-of-sale advertising and display representations, and completed a short questionnaire assessing a series of measures about perceptions of ease of purchase of cigarettes, normative aspects of tobacco use and support for tobacco control policies.

The study, conducted by Melanie Wakefield, Tessa Letcher and Sarah Durkin in collaboration with Caroline Miller from The Cancer Council South Australia, is designed to determine the extent to which further restrictions on retail tobacco displays might be associated with reduced perceptions of ease of tobacco purchase by youth, and reduced normative beliefs about smoking.

- CCCR and TCRE

Progress in tobacco control 2003: Health Omnibus Survey

TCRE is currently analysing data from the annual Health Omnibus Survey (HOS). The HOS is a state-wide annual door to door survey of 3000+ respondents. HOS is used to monitor smoking prevalence, smoking behaviour, quitting intention and activity, quit attempts and methods of quitting, attitude and belief measures in relation to the health effects of active and passive smoking, and exposure to passive tobacco smoke.

The results of the survey will be released in March this year.

n CBRCC

Presentation methods of the UV index

Research suggests that most Australians are aware of the ultraviolet index (UVI) but a majority fail to either recall or utilise it properly, if at all. Awarded funding by The Cancer Council Western Australia, CBRCC has embarked upon research to suggest the best presentation methods for increasing understanding and utilisation of the UVI. The research will involve conducting six focus groups with 16 to 44 year old males and females to discuss the merits and drawbacks of current presentation methods followed by intercept interviews with 600 participants where various UVI presentation methods will be tested, and data gathered on current levels of public awareness, recall, understanding, attitude and utilisation of the index within WA.

Physical activity and cancer prevention project

There is increasing evidence of the benefits of physical activity in preventing cancer. CBRCC has been commissioned to investigate whether 'new' messages that promote physical activity for cancer prevention are more persuasive than 'established' messages about physical activity preventing cardiovascular disease.

n CPRC

We are currently recruiting new staff to work on the NHMRC Capacity Building Grant and program grant projects. The program is focused on physical activity and population health and will include specific studies on understanding the implications of current physical activity recommendations for the prevention of colon and breast cancer and the prevention of weight gain.

n CRCC

Queensland Cancer Risk Study

Behavioural factors such as smoking, sun exposure, diet, alcohol consumption, physical activity and weight gain account for a large proportion of total cancer risk in the population. These behaviours, along with early detection and screening activity, have been, and will continue to be, the main targets for prevention and early detection programs. Evaluation of the effectiveness of these programs in Queensland and elsewhere is hampered by the inadequacy of population-based data on the distribution and trends of these behavioural factors. Surveys on behavioural factors have tended to focus on single behaviours (eg sun exposure) or have been limited by small sample sizes. National health surveys tend to focus on general health information, with only a limited focus on cancer risk behaviours and screening activities.

The Queensland Cancer Risk Study is the first state-wide population-based study aimed at providing a 'snapshot' of:

- the distribution of risk factors for cancer in Queensland, including behavioural factors and other personal characteristics
- screening activity, and
- knowledge and attitudes towards cancer and cancer risk.

Anonymous computer-assisted telephone interviews will be conducted with approximately 10,000 residents of Queensland aged 16-75 years who will be randomly chosen from the electronic White Pages. Those people choosing to participate in further data collection will complete a self-administered questionnaire.

Information from the survey will assist in the interpretation of trends in cancer incidence and mortality in Queensland, and will help to refine and target current programs and to shape future cancer prevention policy and practice.

Prostate cancer supportive care and patient outcomes

In collaboration with the Royal Brisbane, Princess Alexandra and Townsville General Hospitals and Mackay Urology Department, the Centre for Research in Cancer Control plans this year to develop, and evaluate in a randomised controlled trial, a broad reach supportive care intervention for men with prostate cancer. The supportive care needs of men with prostate cancer are closely linked to their treatment experiences. This study will also systematically describe the patterns of care for men with prostate cancer at major treatment centres in Queensland, and treatment outcomes during longitudinal follow-up. Approximately 800 men with prostate cancer will be recruited to the study over the next two years. Their quality of life, psychological adjustment and care patterns will be assessed at baseline and over time. Additionally, a telephone-based model of supportive care for men with prostate cancer will be developed and trialled for men who are being treated with curative intent.

News

n CHeRP

After six years with CHeRP, Dr Dilhani Bandaranayake will be leaving in February to take up a position with the Institute for Health Research. Dilhani commenced with CHeRP in 1998, moving from New Zealand to take up a scholarship for her PhD. Since completing her studies, Dilhani has been managing the communication skills training project. CHeRP would like to wish Dilhani well in her new position.

The Supportive Care Needs Survey: A guide to administration, scoring and analysis is now available from CHeRP. This guide was prepared with contributions from an international group of statisticians and behavioural scientists and is the product of more than a decade of research undertaken by CHeRP. Order forms can be obtained by emailing CHeRP@newcastle.edu.au

CHeRP's Annual Report for 2002-2003 is now available. Copies available by emailing CHeRP@newcastle.edu.au. An update of CHeRPs current projects and staff can be found at its website: www.newcastle.edu.au/centre/cherp/index.html

CHeRP have been successful in attracting funds for a number of new projects:

- Mr Chris Paul, Dr John Wiggers, Dr Raoul Walsh, A/Prof Afaf Girgis and colleagues were recently awarded two years funding by the National Heart Foundation for research examining the effectiveness of pro-active telemarketing of a smoking cessation telephone counselling service.
- Fellow researchers, Dr Anthony Shakeshaft and Prof Rob Sanson-Fisher, in conjunction with A/Prof Afaf Girgis, were recently awarded three-year funding by the National Health and Medical Research Council to examine the development and psychometric evaluation of two measures of perceived needs, one for young persons with cancer, one for parents.
- A/Prof Afaf Girgis received a consultancy from the Institute for Health Research to review the evidence for the benefit of preventive interventions to inform the development of the National Service Improvement Frameworks.
- A/Prof Afaf Girgis, Dr Chris Paul and Claire Johnson were recently awarded one-year funding from the University of Newcastle to conduct a national survey of the perceptions and barriers of doctors to the appropriate and timely referral of cancer patients to palliative care.

n CBRC

CBRC is delighted to announce that Helen Dixon has been awarded her PhD from the University of Melbourne. Her thesis entitled "Portrayal of tobacco use in popular films: an investigation of audience impact" was jointly funded by an NHMRC Public Health Postgraduate Scholarship and The Cancer Council Victoria. Helen's project supervisors were Prof Ron Borland (VicHealth Centre for Tobacco Control) and Prof Susan Paxton (formerly Melbourne University, now LaTrobe University).

CBRC has welcomed Dr Mohammad Siahpush, Senior Scientist & VicHealth Research Fellow and Dr Georgina Sutherland, Behavioural Scientist. Mohammad's main research focus is on understanding and exploring socio-economic determinants of health-related behaviour, while Georgina is currently working on a range of research and evaluation projects related to improving support and information for patients with cancer.

CBRC staff have been awarded a number of NHMRC grants. Dr Suzanne Dobbinson has been awarded an NHMRC New Investigator Grant for three years to conduct a randomised trial assessing a shade development intervention in secondary schools for adolescent skin cancer prevention. Dr Trish T Livingston is Principal Investigator of the project "Referral of men newly diagnosed with prostate cancer to a telephone-based support program", which has been awarded a three-year NHMRC project grant. Prof Rob Sanson-Fisher (Newcastle University) and CBRC's Dr Victoria White have been awarded a four-year project grant for the project "Reducing the unmet psychosocial needs of colorectal patients: a randomised control trial".

Visit our website www.cancervic.org.au/cbrc for information about current CBRC research projects, details of our latest publications and access to the CBRC Research Paper Series.

n CCCR and TCRE

Web-based modules – cancer incidence

In collaboration with the DHS Epidemiology Branch, CCCR has developed a web-based module, showing cancer incidence trends in SA by diagnostic period, socio-economic status, country of birth, and place of residence. Comparisons were drawn between SA incidence rates, those for Australia and other regions of the world. The availability of the module will be advertised widely to science teachers, students at a senior secondary school level, and students at tertiary institutions, including those enrolled in health sciences. Interested members of the public will have ready access. Graphical presentations are presented for individual cancer sites, such that they may be downloaded for use in school projects and for related purposes.

Keynote address

A CCCR staff member also presented a keynote address at the launch in December 2003, of the first five-year cancer registry report for the Malaysian state of Penang. Preventive and screening opportunities were highlighted, especially relating to cancers of the female breast, cervix, lung, colon/rectum, and liver.

CCCR staff co-authored two papers submitted for publication in peer-reviewed journals. The first points to secular increases in recorded depth of cutaneous melanomas within thickness categories. The validity of this trend is discussed, together with implications for early detection. The second paper describes secular and socio-demographic trends in the early detection of female breast cancer. Sub-groups of women at elevated risk are described, as a guide for the promotion of early detection.

n CBRCC

CBRCC recently launched its new website: http://curtin.edu.au/health/research/cbrcc. Due to popular demand we are currently in the process of making our last four years' worth of technical reports available electronically. Any comments on the content would be welcomed and should be directed to Owen Carter: o.carter@curtin.edu.au.

Staff at CBRCC made five presentations at the Fourth Western Australian Cancer Conference on 25 November 2003. Prof Rob Donovan delivered a plenary presentation entitled "Dreams for cancer prevention", Geoffrey Jalleh delivered a presentation entitled "WA secondary student sun behaviour", Owen Carter delivered two presentations entitled "The reaction of Bunbury patrons to a possible smoking ban in public bars and nightclubs" and "Adtesting a new SunSmart commercial for 18 to 24 year olds", and Narelle Weller delivered a presentation entitled "Consumers' awareness, use and evaluative perceptions of cancer guidelines".

n CPRC

The Centre worked with the Brisbane City Council to run a second workshop dealing with how aspects of the built environment influence physical activity. The seminar involved talks by our interstate collaborators and one of our overseas collaborators on the PLACE project. Around 150 people attended.

The Institute for Scientific Information (ISI) has identified a recent review paper on how environments influence physical activity (by Nancy Humpel, Eva Leslie and Neville Owen) as having an exceptionally high number of citations. There is a feature article on the ISI website (http://esi-topics.com/).

The dissemination of the 'Wiggles' book (Dorothy the Dinosaur and Her Magic Hat) has been negotiated between The University of Queensland and Queensland Health. Several thousand copies will be reprinted and distributed through the child and family health system in Queensland. The book is based on research carried out by Liane McDermott and deals specifically with sun protection for young children and their parents.

n CRCC

The Queensland Cancer Fund has formally established its Centre for Research in Cancer Control, incorporating a Cancer Epidemiology Unit and a Behavioural Research Unit. Associate Professor Joanne Aitken has been appointed Director of the Centre and Dr Liz Eakin as Head of the Behavioural Research Unit. Joanne is a cancer epidemiologist with a long-standing interest in large scale, population-based studies of cancer aetiology, early detection and outcomes and was previously Director of Epidemiology at the Queensland Cancer Fund. Liz holds a PhD in clinical psychology and behavioural medicine, and is recognised for her work in Australia and the US on behavioural approaches to chronic disease prevention and management. We are actively seeking a senior epidemiologist to head the Cancer Epidemiology Unit. In addition to Joanne and Liz, the staff of the Centre include Dr Peter Baade, Senior Research Fellow in Biostatistics, and Dr Monika Janda, a behavioural scientist who recently completed her PhD in psycho-oncology at the University of Vienna.

Management and support staff include a research administrator, a senior database manager, eight project managers, telephone interviewers and support staff. The Centre has begun an ambitious and comprehensive cancer control research program focussing on melanoma, other skin cancers, colorectal, ovarian and prostate cancer and on prevention, screening and early detection, supportive care, and treatment outcomes, including quality of life. The Centre for Research in Cancer Control will work in concert with the Queensland Cancer Fund's community services section as part of an integrated approach to cancer control based on surveillance, research and evidence-based

Are superficial basal cell carcinomas the most common cancer in the Australian community?

I have recently conducted a personal prospective audit of 349 consecutive consultations (in 244 patients) presenting to two primary care skin cancer clinics in Perth, WA.

Particular attention was paid to the detection of superficial basal cell carcinomas, given that it is often stated that they are commonly overlooked in primary practice.

All skin malignancy was confirmed by histopathology and each lesion was counted once only in the audit (ie where an initial incisional biopsy was followed by a definitive excision). Only new (non-recurrent) malignancies presenting in the audit period were tallied.

The mean age of patients presenting for a skin cancer check was 51.4 years, with the peak age groups being 46-55 years (28 male, 32 female), and 56-65 years (32 male, 30 female). There were 113 males (46.3%) and 131 females (53.7%) in total.

Seventy-eight skin malignancies were diagnosed in 42 (17.2%) patients. The majority (58/78, 74.4%) were basal cell carcinomas (BCC). Of the BCC sub-types, superficial BCC were the most prevalent (32/58, 55.2%), then nodular (20/58, 34.5%), pigmented (2/58, 3.4%), morphoeic (2/58, 3.4%), mixed superficial/nodular (1/58, 1.7%), and predominantly infiltrative (1.7%).

The mean age of patients with superficial BCC was 58.5; for nodular BCC it was 59.4 years. McCormack et al[1] conducted a retrospective analysis of 3885 BCC histopathology specimens and found corresponding figures of 56.8 years and 63.9 years respectively, a statistically significant difference (P<.001).

Ten squamous cell carcinomas and six Bowenoid lesions were found in 11 patients, with a mean age of 66.8 years.

Four melanomas (three superficial spreading, one nodular) were found in three patients, with a mean age of 62 years.

The distribution of nodular BCC was mainly on the head and neck areas (13/20, or 65% of all nodular BCC), contrasted to the predilection of superficial BCC for the trunk (21/32, or 65.6% of all superficial BCC) and limbs (9/32 or 28%). This compares with corresponding figures from McCormack: 65.2% of nodular BCC were on the head and neck, 50.5% of all superficial BCC were on the trunk, while 25.8% were on the limbs.

The differing distribution characteristics of superficial BCC and nodular BCC, as well as the younger age group affected with superficial BCC lead McCormack et al to hypothesise differing aetiologies for superficial BCC and nodular BCC. They suggested that superficial BCC may be related more to intermittent sun exposure or sunburns (as for melanoma), whereas nodular BCC may be more closely associated with cumulative, chronic UV irradiation.

The finding of a higher prevalence of superficial BCC than nodular BCC in the present study contradicts the prevailing notion that nodular BCC is the most common subtype[1,2]. McCormack et al found that only 14.8% of all BCCs tallied in their study were superficial BCC, with 63.8% being nodular BCC.

However, if superficial BCC are frequently overlooked in primary practice, or are treated by destructive means (eg cryotherapy, curettage and electrodesiccation) by dermatologists without generating a histopathology specimen, then they will be under-represented in histopathological data.

The significant skin pathology presenting to skin cancer clinics and the finding of a higher prevalence of the superficial BCC subtype is consistent with my personal findings over a longer two-year period.

The audit suggests that superficial BCCs are the most common type of skin cancer in the community. This implies that they are currently being under-diagnosed due to either lack of recognition (commonly being mistaken for a macule/patch of dermatitis, tinea, Bowens etc), or to the primary care physician not having the time required for performing periodic total cutaneous examinations on "at-risk" patients.

J Giacomel
South Perth, WA

References

1. McCormack CJ, Kelly JW, Dorevitch AP. Differences in age and body site distribution of the histological subtypes of basal cell carcinoma. Arch Dermatol. 1997;133:593-6.

2. Freedberg IM et al. Fitzpatrick's Dermatology in General Medicine. 5th ed. McGraw-Hill Professional; 1999.

New additions to 'Find a Specialist' website

Directories of breast surgeons and gynaecologic oncologists are now available online through The Cancer Council Australia's 'Find a Specialist' website.

Links to membership lists for the Breast Section of the Royal Australasian College of Surgeons and the Australian Society of Gynaecologic Oncologists can be found at www.cancer.org.au/specialist. They join links to lists created and maintained by seven other specialist medical colleges and societies.

The website is aimed at helping cancer patients and their doctors find a specialist in a particular field of cancer treatment within their state. It also explains the various medical specialties and sub-specialties, and the most common kinds of cancer treatment.

Cervical screening conference

The Cancer Council Australia will be hosting a one-day conference on cervical cancer screening as part of an international meeting to be held in Melbourne in April. The cervical cancer screening stream of the 18th World Conference on Health Promotion and Health Education will be held on Thursday, 29 April at the Melbourne Exhibition and Convention Centre.

The program will provide opportunities to share knowledge and showcase existing good practice in cervical screening programs, highlight future opportunities and new technologies, raise awareness of access and equity issues of disadvantaged woman, and allow for the development of networks to facilitate and maintain collaborative relationships. It is expected that the focus of the cervical screening conference stream will offer the opportunity for presentations on current issues including new technologies in cervical screening, the human papilloma virus (including a vaccine and testing), and effective recruitment measures for reaching unscreened women.

For further information, including the registration form, go to www.Health2004.com.au/program2/cervical.asp. The Cancer Council Australia gratefully acknowledges the Australian and Victorian governments for their assistance through funding support of the cervical cancer screening stream.

'Get connected' through the Cancer Helpline – 13 11 20

Radio announcements promoting the Cancer Helpline were heard around Australia as part of The Cancer Council's "Get Connected" theme for World Cancer Day on 4 February.

The new community service announcements are part of a Cancer Council drive to encourage people affected by cancer to "get connected" to support services and information through the free, confidential telephone service.

The Cancer Helpline is run by Cancer Councils in each state and territory. Specially trained staff can answer questions about all aspects of cancer, including prevention, early detection, and treatment. They can also assist with practical and emotional support and advise callers about specific services appropriate to their needs and location.

People can call the Cancer Helpline on 13 11 20 (cost of a local call from anywhere in Australia) between 9 am to 5 pm, Monday to Friday. Some states have extended hours, some have health professionals on staff, and some have multilingual services.

Graphic tobacco warnings move welcomed

The Federal Government's proposal to add existing health warnings on cigarette packets with graphic images has been welcomed by The Cancer Council Australia. But The Cancer Council's CEO, Professor Alan Coates, warns there is no time to lose in moving from the planning to implementation phase.

"We can expect the tobacco industry to make a bid for the maximum delay in introducing graphic warnings, and urge the Federal Government to resist this pressure and put the new system in place as soon as practically possible," Professor Coates said.

"We can't afford to drag our feet on this issue – the sooner we make the changes, the more chance we will have of encouraging smokers to quit and curbing the number of young Australians who take up the habit."

On 2 February 2004 the Parliamentary Secretary for Health, Trish Worth, released for public comment details of how a Canadian-style graphic warnings system would work in Australia. It is proposed that the new system be in place by June 2005.

The Cancer Council will look at the Federal Government's plans in detail and make a submission by the deadline of 19 March. Further details about the proposal are available at www.health.

gov.au and www.treasury.gov.au.

Jump in non-melanoma skin cancer

The number of Australians treated for the most common forms of skin cancer has increased by more than a third since 1995 and has doubled over the past two decades, recent Cancer Council figures have shown.

The first new non-melanoma skin cancer statistics released in seven years show that 374,000 Australians over the age of 14 were treated for at least one non-melanoma skin cancer in 2002.

This compares with 270,000 in 1995 when the last national non-melanoma survey was done, and 168,000 in 1985 when the first survey was conducted.

The 2002 National Non-melanoma Skin Cancer Survey report was compiled by the National Cancer Control Initiative (NCCI) on behalf of the state and territory Cancer Councils, and launched during National Skin Cancer Action Week in November 2003.

The Chair of The Cancer Council Australia's Skin Cancer Committee, Mr Craig Sinclair, said the good news is that rates are not increasing in people aged under 50. "We're seeing the increase where we'd expect to see it – it's the late effect of a post-war change in clothing and sun exposure habits, in a population group that wasn't exposed to sun protection campaigns during their childhood," he said. The report is available online at www.ncci.org.au.

New anti-tanning campaign

The Cancer Councils have launched a new campaign in response to mounting evidence that many Australians think a tan looks attractive and healthy.

The first Australian television campaign highlighting the dangers of tanning, unveiled at the launch of National Skin Cancer Action Week in November 2003, shows the dangers of deliberate tanning.

The community service announcement shows a tattoo of a sun on a young woman's midriff that becomes animated then travels across her skin, leaving behind a skin cancer which then transforms into a stitched surgical wound and then a large scar. A voiceover warns that tanning can lead to premature ageing, skin cancer and ugly scarring.

The Chair of The Cancer Council Australia's Skin Cancer Committee, Mr Craig Sinclair, said the campaign is in response to alarming findings about tanning preferences and perceptions, particularly among young Australians. "Recent research by the Cancer Councils indicates that around half of Australian women prefer a tan, 55% of New South Wales teenagers think people with a tan are more attractive, and a quarter of the Victorian population is trying to get a tan," Mr Sinclair said.

Focus testing of the television campaign among Australians aged 14 to 35 showed this target audience found it powerful and thought-provoking. The majority said they would be more likely to protect themselves from the sun after seeing the ad. The campaign, which also includes radio community service announcements and posters, has been seen in most Australian states this summer.

Australia's Biggest Morning Tea

The Cancer Council Australia invites all Australians to gather with family, friends and workmates and have a cuppa for cancer research for Australia's Biggest Morning Tea on Thursday 27 May 2004.

Hosts enjoying a morning tea anytime in May will be helping achieve the event's fundraising target of $7 million. By registering your event with your local Cancer Council, you will receive a complimentary information kit packed with morning tea ideas.

The Cancer Council Australia's Chief Executive Officer, Professor Alan Coates said, "While Australians enjoy a cuppa, they can be reassured that their small contribution will make a big difference to the almost 1 in 3 people diagnosed with cancer."

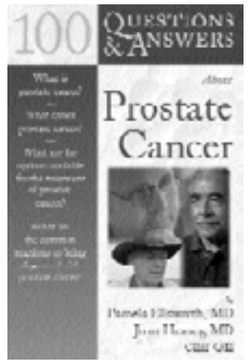
BOOK REVIEWS

100 Questions and Answers about Prostate Cancer

P Ellsworth, J Heaney and C Gill

Published by Blackwell Publishing (2002)
ISBN: 0-7637-2040-2. 226 pages plus index.
RRP: A$29.65

100 Questions and Answers about Prostate Cancer was written by two urologists (Ellsworth and Heaney) and a man who has been treated for prostate cancer (Gill). The book is targeted to men diagnosed with prostate cancer and men who have concerns about prostate cancer. The principal aim of the book is to educate the reader about most aspects of prostate cancer, and from this, assist men to make informed decisions about both treatment and early detection.



In this regard, self help books for men with prostate cancer are becoming more common. Ongoing uncertainty about the ideal treatment approach and the benefits of early detection make this a topical book. Further, given that men with prostate cancer tend to be high seekers of health-related information there are no doubt some men who will find this book of interest.

The book has seven sections. The first three parts cover the anatomy and physiology of the prostate and the epidemiology of prostate cancer. Prostate cancer screening is then discussed. Parts four to six focus on prostate cancer staging and treatment from a biomedical viewpoint, and the final section discusses the psychosocial effects of prostate cancer.

This text is written at a level appropriate for readers with high literacy. In many parts, complex terminology is used that will not be accessible to many men, and will, for non-medical readers, require frequent cross-referencing to the glossary. The glossary is detailed and together with the index will assist readers with navigating the text. Men who prefer very detailed information (for example, the Partin tables are reproduced to explain prediction of cancer stage), and who are already well read on the subject may find the book less daunting. An appendix lists a range of prostate cancer-related websites, service organisations and patient education literature available for men in North America.

From a psychosocial viewpoint, the emphasis on open communication with the medical team and informed decision making is sound, and the advice about coping is helpful and to the point. The information provided about healthcare entitlements, medical treatments and support services is specific to North America, and so not all will apply locally. In this regard, there are a number of resources currently available in Australia from state Cancer Councils, the Australian Prostate Cancer Collaboration and the Prostate Cancer Foundation of Australia, that can provide men with a firm knowledge base to which this book might add.

S Steginga
Queensland Cancer Fund
Fortitude Valley, QLD

2003 Year Book of Oncology

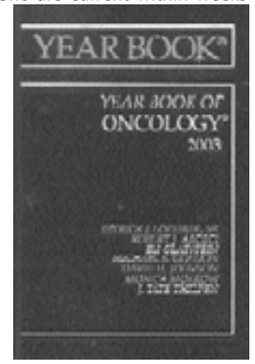
PJ Loehrer Sr et al (eds)

Published by Mosby (2003) Distributed in Australia by Elsevier
ISBN: 0-3230-2075-5. 366 pages plus index.
RRP: A$235.40

The 2003 Year Book of Oncology carries on the tradition of many previous years of publication, utilising an unchanged format and presentation style. A distinguished group of editors, under the leadership of Dr Patrick J Loehrer Sr, select articles from the published oncology literature that they consider to represent significant research developments in cancer. The papers are summarised in abstract format, and expert commentary by an individual from the editorial committee evaluates the importance and contribution to clinical practice. Sections are devoted to all solid tumour sites, as well as haemopoietic malignancies, lymphoproliferative disorders, paediatric oncology, epidemiology, supportive care, and psychosocial and alternative therapies. Although the reviewed papers principally have a clinical focus, sections are included on cancer biology and cancer therapeutics. In addition, within the individual chapters for tumour sites, relevant papers on basic science are included.

The benefit from a book such as this is that it provides readers with the opportunity to update themselves (albeit superficially) in areas outside their major areas of interest and practice. It is difficult keeping up with the many cancer journals, and the 2003 Year Book of Oncology provides a degree of focus, as well as bringing to the attention of the reader papers from journals that one may not normally access (an example being a Danish register-based study on the association between depression and cancer risk, published in the American Journal of Epidemiology).

However, this book is subject to several criticisms. The title 2003 Year Book of Oncology is a misnomer. The reviewed papers are from the 2001 and 2002 literature, so they are already outdated by 12 months. The advent of the internet means that literature searches and reviews are current within weeks of publication of a paper, such that books like this lose some of their impact, particularly when the clinician is accessing the literature pertinent to their main area of practice. The choice of papers included in the "2003 Year Book" is obviously very subjective, dependent on the editorial committee's interests. The standard of expert commentary is generally very good, but in some situations merely represents a rewording



of the abstract contents.

In spite of these criticisms, I enjoyed reading the 2003 Year Book of Oncology. I found several papers outside my general area of reading that will make for interesting presentations at my department's journal club. And I particularly enjoyed the delightful and clinically insightful thoughts provided by Professor Eli Glatstein in his expert comments. Based on the cost, it is difficult to justify recommending this book be included in your department's library but it still makes a good read if you are able to obtain a copy.

C Lewis
Prince of Wales Hospital
Randwick, NSW

Advances in Cancer Research (Vol 87)

GF Vande Woude and G Klein

Published by Academic Press (2003)
ISBN: 0/1200-6687-4. 250 pages plus index.
RRP: A$278.85

This volume presents six review articles in four areas of modern cancer research: cancer cytogenetics, telomerase, cancer viruses and cancer immunology. In general, the articles are up-to-date, thoughtful essays on important aspects of cancer biology and medicine. There are no straightforward answers for cancer clinicians or researchers, but each of these articles points to important problems in the field and each gives a brief overview of the future challenges in their field.

Chromosome instability has been an intensely interesting and productive field of cancer research. David Gisselsson describes briefly the history of genetic instability, the importance of fragile sites and tumour specific chromosomal abnormalities. The interesting association between centrosomal abnormalities and carcinoma in situ is discussed in some detail. Telomerase has long been mooted as a major potential target for the development of cancer therapeutics. Although some potent small molecule inhibitors of telomerases have been identified, the anti-proliferative activity of these compounds in cellular systems/extracts is much lower than expected. With the current interest in telomerase as a vaccine and anti-cancer therapeutic, this review by Zhi Chen and David Corey is a timely summary of the challenges for the field.

The major article in this volume is directed towards the pathogenicity to retroviruses by Jan Svoboda, Josef Geryk and Daniel Elleder. This article contains a wealth of information on the biology of retroviruses relevant to cancer – the acquisition and activation of the Src oncogene, the subversion of immunity and transmission of retroviruses are covered in detail. This article is supported by a comprehensive list of over 400 useful references.

The last three articles concern immunological aspects of cancer biology: EBV and nasopharyngeal carcinoma (both local and serological responses); cytokine, antibody and vaccine approaches to the immunotherapy of prostate cancer; and a final short chapter on the role of CD4+ T-lymphocytes in anti-tumour immunity. These are all useful, accessible articles for scientists and clinicians with an interest in these fields, but who are not experts in EBV or immunology.

The book has an excellent index, so specific topics are found quite easily. It would be remiss not to point out that the quality of figures presented is quite disappointing – the graphics text is actually out of focus. The binding of all the colour figures in the middle of an irrelevant article is quite confusing, especially when there is no indication on the figures to which they are associated. The presentation of figures is so poor that they will be of little or no use for those involved in teaching.

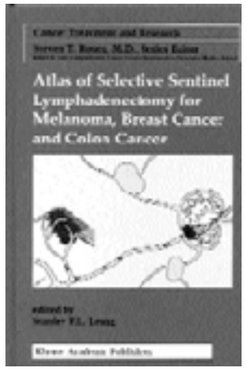
AW Burgess
Ludwig Institute for Cancer Research
Parkville, VIC

Atlas of selective sentinel lymphadenectomy for melanoma, breast cancer and colon cancer

SPL Leong (ed)

Published by Kluwer Academic Publishers (2002)
ISBN: 1-4020-7013-6. 117 pages plus index.
RRP: US$125.00

Sentinel lymph node evaluation has recently had a significant impact on the staging of patients with certain solid tumours. This atlas is one of several recent publications that provides readers with the rationale and results of sentinel node biopsy specifically for melanoma, breast cancer and colon cancer.



A distinct advantage of this particular book over other similar publications is that it is particularly tailored to the technical and practical aspects of lymphoscintigraphy and sentinel node biopsy. Published in 2002, the atlas has an extensive reference list for each of the six chapters for articles published up to the year 2001. The initial chapters concentrate on the rationale and development of sentinel lymph node biopsy and lymphoscintigraphy.

The section explaining the technical aspect of gamma probes is easy to understand and a short section on radiation exposure and safety is particularly useful. At the end of each chapter, a set of clinical "pearls" in dot-point format provide valuable practical tips on performing sentinel node biopsy, particularly for surgeons. The section on pathology handling of sentinel nodes highlights the current controversies regarding micrometastases, sectioning techniques and intraoperative assessment. Much of the atlas is dedicated to sentinel node biopsy in breast cancer and melanoma.

The final chapter relating to colorectal cancer is essentially a single institutional study suggesting that sentinel node biopsy is feasible and accurate for this condition. Overall, the book was quick, and easy, to read. Although the discussions regarding isotope use principally relate to Technetium 99 sulphur colloid (American publication), there is some discussion regarding the use of other colloidal agents including Antimony (the principal colloidal agent used in Australia and New Zealand).

The price for a concise atlas such as this seems high, but I believe that it would serve as a useful reference book for any person with an interest in sentinel node biopsy.

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Biologic Therapy of Leukemia

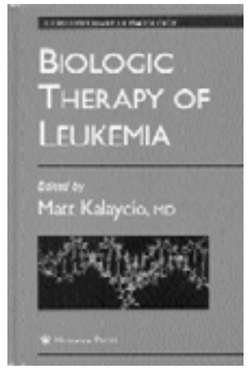
M Kalaycio (ed)

Published by Humana Press (2003)
ISBN: 0-5882-9317-2. 259 pages plus index.
RRP: A$115.00

This is the fifth monograph in the series Contemporary Hematology and is edited by Matt Kalaycio from the Cleveland Clinic. The book contains five sections, each with one to five chapters, dealing with immunotherapy, cytokines, targeted therapeutics, differentiation agents, and gene therapy. Of the 23 involved authors, 19 are from North America, which is also reflected in the content.

The preface explains that these "new" approaches developed for the treatment of leukaemias "…can collectively be classified as truly 'biologic' therapies because they take advantage of the known biology of leukemia". Therein lies one of the major difficulties with this text. The specified subject matter is extremely broad and largely arbitrarily chosen, as it is arguable that there is far more understood about the "biology" of leukaemia cell DNA synthesis, repair mechanisms, nucleotide biochemistry and cell kinetics as they relate to the rational selection of chemotherapy agents (not covered), than the "biology" of interferon responsiveness (one chapter), or the "graft-versus-leukemia" effect (one chapter).

Apart from the issue of content selection, there is also highly variable depth and quality of coverage of the selected topics. There is an interesting and succinct discussion of the use of leukaemia-derived dendritic cells (David Claxton) but no coverage of peptide immunisation strategies generally, despite their recent clinical promise. The historical overview of the "graft-versus-leukemia" effect is well-written, but the chapter lacks a discussion of the current understanding of the cellular effector mechanisms or an overview of the diseases where a clinically meaningful effect may be exploited therapeutically. The discussion of Myelotarg (Gemtuzumab Ozogamicin) is very useful, as much of the structural, biochemical and mechanistic data is not otherwise brought together elsewhere in the literature. Other useful chapters include the review of antisense strategies, and the clinical summary of ATRA development in APML. The chapters on interferons, interleukin-2, and multi-drug resistance were less valuable, with more complete and thorough reviews readily available in the recent published literature.



Another weakness of the text was the variability in the recency of literature cited, with just one chapter including (obviously at the proof stage!) citations from the 2002 American Society of Hematology meeting, and most chapters not incorporating data from many major publications from after 2001.

Overall, while there were a few worthwhile portions, the book was too uneven in its content and incomplete in its coverage to be highly recommended. Most clinicians treating patients with leukaemia would be able find one or two chapters that provided them with a succinct and useful overview of an area they were not following closely in the current literature, but this would rarely justify individual purchase.

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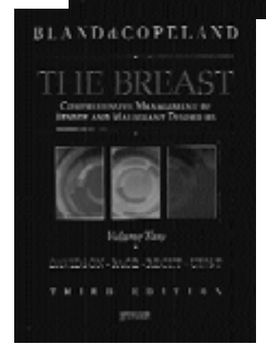
The Breast: Comprehensive Management of Benign and Malignant Disorders Vol 1 and 2

KI Bland and EM Copeland (eds)

Published by Saunders (2003)
Distributed in Australia by Elsevier
ISBN: 0-7216-9490-X. 1628 pages plus index.
RRP: A$465.30

The Breast: Comprehensive Management of Benign and Malignant Disorders is an impressive two-volume textbook that makes ones palms sweaty with the thrill of the quality and complexity of the contained information. That it has just been published in its third edition demonstrates both the successful formula and esteem with which the book has been regarded since first being published in 1991. Bland and Copeland, with the assistance of the multidisciplinary team of associate editors, have again expertly edited this book into a well-balanced, meticulously referenced, but not overly repetitive, treatise. The authorship list represents a significant proportion of the leading names active in the research and management of breast disease in the US.



There has been substantial revision, updating and refocusing of the book to current issues in this latest edition. In many of the chapters a significant proportion of the references date from the year 2000 onwards. The general layout is the same as the last edition and includes historical perspectives, congenital and benign disease, proliferative and premalignant changes, molecular biology of breast cancer, imaging and biopsy techniques, treatment of early and advanced invasive disease, follow up care, psychological issues and medico legal issues. There is an excellent section on "special presentations of breast cancer".

As you would predict from the authorship, there remains an appropriate significant proportion of the book given to surgical issues. The section on mastectomy by skin-sparing techniques and reconstruction has been expanded and there is a new section on macromastia and reduction mammoplasty. On the other hand, the section on adjuvant systemic therapy remains concise but still covers most of the major issues in hormonal, cytotoxic and biological therapy of recent times. There are new sections on breast ductoscopy and image-guided ablation of breast tumours.

The overall format is somewhat challenging. Despite its considerable size the book has a compact, small print design that is suited to its reference style rather than general readability. The Breast: Comprehensive Management of Benign and Malignant Disorders represents an extremely valuable addition to the medical library of anyone involved in the management of breast disease. It would be a great asset for any breast surgeon, specialist breast surgical trainee or breast physician.

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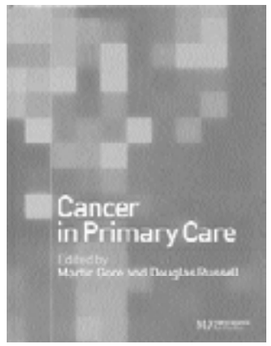
Cancer in Primary Care

M Gore and D Russell (eds)

Published by Martin Dunitz (2003)
ISBN: 1-9018-6526-6. 304 pages plus index.
RRP: US$64.00



Cancer in Primary Care is specially written for the primary care physician. Edited by Professor Martin Gore (Royal Marsden Hospital, London) and Douglas Russell (primary care physician, London), with contributions from some of the UK's leading experts in oncology, it is a concise, practical, and easy-to-read reference of modern cancer management.

The text is well-illustrated, with over 50 diagrams, numerous colour photographs and over 100 tables. Summary charts of key clinical points, treatment options, and indications for referral are especially convenient to the general practitioner. It is also well-referenced for those wishing to pursue any articles quoted in the text.

Sections include managing patients with cancer, which discusses the psychological aspects of cancer in primary care, and principles of cancer care, including discussion on cancer prevention, heredity and cancer and cancer screening.

The largest section of the book details specific types of cancer including cancer of the lung, breast, gastrointestinal tract, prostate, bladder, ovary, leukaemia, lymphoma, skin/melanoma, head and neck, paediatric cancer and HIV-associated cancer.

There is also information on interpreting data and research, information and support for cancer patients and a glossary of some of the more technical terms used in the text.

While the text is written primarily for the GP or primary health care team to help in the daily care of their cancer patients, specialists who wish to update on cancer management outside of their specialty also may find the book useful.

My main criticisms is that as this book offers an overview of such a vast field as oncology, those who have a particular interest in one area (eg skin cancer/melanoma) may find insufficient depth in the text. Also, being a British work, the cancer support networks, rates of disease and so on generally have a local UK (rather than Australian) basis.

These minor points aside, this is an impressive book that would serve as a valuable reference for GPs with an interest in contemporary, holistic cancer management.

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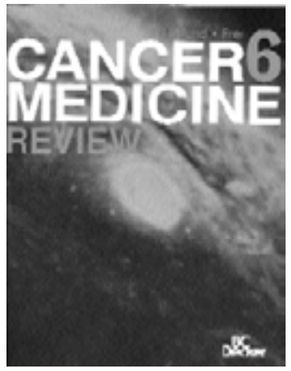
South Perth, WA

Cancer Medicine Review (6th edition)

DW Kufe et al (eds)

Published by BC Decker (2003) Distributed in Australia by Elsevier
ISBN: 1-5500-9221-9. 178 pages.
RRP: A$104.50



This is an excellent collection of multiple-choice questions (MCQs), intended to act as a self-assessment companion to the recent (2003) textbook, Holland-Frei Cancer Medicine-6. The book includes over 750 questions, organised into six main sections: cardinal manifestations and informatics, scientific foundations, cancer diagnosis, therapeutic modalities, multidisciplinary management, cancer management, pediatric oncology, and complications.

Question numbering is in accordance with the companion volume and around five questions are included for each of the 162 chapters of the main text. Only nine chapters do not have accompanying MCQs. The vast majority of questions are of the type with a single correct response and, thankfully, questions address key issues, rather than minutiae.

Almost all answers include a useful paragraph of explanation/discussion. Unfortunately, however, the answers do not cite particular journal articles nor do they refer back to the relevant section of the main text. Also, the Review does not include the chapter listing for the main text, nor an index, making it a little difficult to locate questions addressing particular fields.

Nevertheless, the Review is an accurate, up-to-date resource for self-assessment, which is likely to be of considerable value to those in training and those wishing to maintain their knowledge. It will also be helpful for teaching and will aid in the development of examination questions. Importantly, the Review will be useful, regardless of whether or not the purchaser also has the accompanying textbook, Holland-Frei Cancer Medicine-6.

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Cancer Sourcebook (4th edition)

K Bellenir (ed)

Published by Omnigraphics (2003)
ISBN: 0-7808-0633-6. 1049 pages plus index.
RRP: US$78.00

The Cancer Sourcebook is one of almost 100 sourcebooks in a large health reference series that is designed to provide basic consumer information about health-related issues. Running to over 1000 pages, the current edition is divided into six parts.

Part one provides a comprehensive overview of facts and figures about cancer. Incidence and survival statistics are reported for the US population. Part two summarises known and putative causes of cancer and recommends a screening checklist for cancer protection measures. Individual chapters evaluate established causes of cancer well (eg tobacco) and provide a balanced assessment of controversial causes (eg mobile phones). Part three provides good quality summaries of the anatomy, risk factors, symptoms and principles of treatment of many individual cancer sites. More complex cancers are often afforded individual descriptions. For example, the chapter on thyroid cancer distinguishes benign and malignant nodules, and briefly summarises the different types of thyroid cancer. Part four describes treatments available for cancer and includes descriptions of standard medical treatments, developmental therapies (eg gene and vaccine therapies) and unproven treatments. Part five deals with day-to-day coping with cancer and treatments, and part six lists sources of information for further help and information.

A particular strength of the Cancer Sourcebook is its reference to websites and major cancer organisations. The book is also well-written for a lay audience. Sentences are clear, dot points are frequently used, jargon terms are avoided and yet the message is not over-simplified. Despite its size, however, the Cancer Sourcebook is not a complete description of all aspects of cancer and in some areas the book's strong advocacy for better health lacks a firm basis in evidence. Some tips and screening checklists for protection against cancer are controversial. For example, for men over 50 an annual PSA is recommended while for men between 15 and 35, monthly testicular self-examination is reported to increase the chances of finding testicular cancer early.

The Sourcebook also would be helped by having a more standardised format of chapter structure for cancers arising at individual sites. One particular area of inconsistency is that some chapters include numerous questions for consumers to ask their healthcare practitioners – a particular strength of this book that complements the list of websites and contact details for further information – yet other chapters lack this detail. The book is also written with a US audience in mind and uses idioms characteristic of American culture.

Finally, the Cancer Sourcebook has no chapters devoted to cancer of the breast or gynaecological cancers, and needs to be combined with the Breast Cancer Sourcebook, the Cancer Sourcebook for Women, Prostate Cancer Sourcebook [see review in this issue], Leukemia Sourcebook and Pediatric Cancer Sourcebook in order to provide a comprehensive compendium of references. The Cancer Sourcebook can find a useful place on the shelves of libraries that serve the public and healthcare organisations that deal directly with the public.

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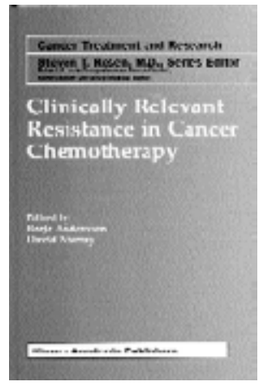
Clinically Relevant Resistance in Cancer Chemotherapy

B Andersson and D Murray (eds)

Published by Kluwer Academic Publishers (2002)
ISBN: 1-4020-7200-7. 372 pages plus index.
RRP: US$160.00



This is a reference book for the sub-specialist in oncology with a particular interest in the pharmacologic and molecular mechanisms that underpin drug resistance. The introduction of an increasing repertoire of chemo-therapeutic agents has seen quite impressive remission rates in certain malignancies, but long-term failure in the more common cancer types. The editors point out that the phenomenon of 'drug resistance', often viewed as rapid occurrence of resistance at the single cell level, is in fact due to a multitude of individual factors. The aim of the book, which forms part of the Cancer treatment and research series, edited by ST Rosen, is to present an integrated review of these multiple mechanisms.

The book is divided into 17 chapters, separately authored, so that at times there is some predictable but acceptable overlap (particularly in chapters that address cyclophosphamide resistance). The authors are largely from the MD Anderson Cancer Center (Texas, USA), and the Cross Cancer Institute (Alberta, Canada), reflecting the host institutions of the two editors. In the main, most chapters are divided into sections that comprise a relatively brief introduction, a detailed overview of molecular mechanisms, followed by information on their clinical relevance.

Only the first chapter, by Davis and Tannock, addresses extrinsic causes of resistance such as drug penetrance and repopulation kinetics. Most of the remaining chapters focus on specific pathways or molecular mechanisms of resistance. These include nucleoside membrane transporters, MDR and MRP gene families, the glutathione pathway in alkylator resistance, the JNK and MAPK pathways, and repair of interstrand DNA crosslinks. There are a number of chapters detailing alkylator resistance, as well as cisplatin resistance. Two chapters are devoted to mechanisms of resistance in myeloid leukaemia.

The final chapter introduces the newer area of genomic studies and drug resistance, and provides a nice overview on information that can be obtained by gene expression profiling, and its use in assessing anticancer drug resistance and sensitivity. Due to rapid progress in the field, recent

publications since 2002 are not covered. Also overviewed is the large area that is emerging in evaluating resistance and DNA sequence variations (particularly single nucleotide polymorphisms, SNPs). These account for the ~0.1% sequence variation between individuals that are responsible for our genetic differences, including drug sensitivity.

Each chapter is excellently referenced. The final chapter also provides multiple website addresses for those with a practical interest in profiling and SNPs, although there is some risk that these will become dated.

In summary, the greatest value of this book likely will be as a reference manual for clinicians with a primary interest in pharmacology. It also would be suitable in a departmental library for groups involved in clinical drug trials.

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Diagnosis and Management of Ovarian Disorders (2nd edition)

A Altchek et al (eds)

Published by Academic Press (2003)
ISBN: 0-1205-3642-0. 553 pages plus index.
RRP : A$265.00

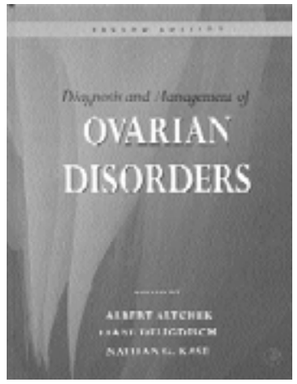
This is an excellent reference book pertaining comprehensively to one organ, the ovary. It is a book most suited to the general obstetrician/gynaecologist but also will appeal to subspecialists managing patients with ovarian disorders (including gynaecological oncologists, reproductive endocrinologists or even medical oncologists managing women with ovarian carcinoma).

The editors have arranged and produced this book in a way that deals entirely with the ovary, its function and dysfunction.

The book is divided into three sections: physiology, pathology, and basic science; diagnostic procedures and new approaches; and contemporary management.

Each of these sections is delivered in a multidisciplinary approach utilising a field of distinguished authors. The editors in this manner of presentation reiterate the importance of understanding basic function before dysfunction can be appropriately understood and managed.

This second edition is a well-delivered update of an already comprehensive textbook that takes into account the cutting



edge concepts and management issues arising in an ever-changing field of medicine. The new information presented is relevant, up-to-date and extensively referenced. In particular the sections on genetics (in association with both familial and sporadic ovarian carcinoma), screening and future directions are of particular interest.

The largest section, part three, is meticulously but succinctly delivered. From the perspective of a medical oncologist however, I believe that the chemotherapy chapter is a bit too abbreviated, but considering the textbook's overall aim it is well-referenced and to the point.

For readers of Cancer Forum with an interest in managing women with ovarian cancer, this textbook is a valuable addition to their reference library.

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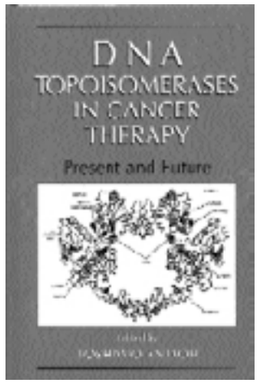
DNA Topoisomerases in Cancer Therapy: Present and Future

T Andoh (ed)

Published by Kluwer/Plenum (2003)
ISBN: 0-3064-7744-0. 188 pages plus index.
RRP: US$112.00

This is a multi-author work describing recent developments in topoisomerase I- and topoisomerase II-targetted cancer drugs. The opening chapter is a delightful account by James Wang of his discovery of the first topoisomerase in the bacterium E coli in 1968. Professor Wang manages to remind us, in a manner evocative of James Watson's description of the discovery of the DNA double helix, of the gentle, naïve, and inquisitive ways of academic science in those days before it became the business it is today.



The rest of the book is divided approximately equally between consideration of topo I-drugs and topo II-drugs. The main issues discussed concern the mechanisms of topoisomerase poisoning and why this leads to cell death, mechanisms of resistance to topoisomerase poisoning, mechanisms of degradation of trapped topoisomerase cleavable complexes, the use of yeast systems to investigate the mechanism of action of topoisomerase poisons and descriptions of new agents as candidate cancer drugs.

From a clinical oncologist's point of view, perhaps the two chapters dealing with the latter subject are the most immediately relevant. However, they form only a minor part of the book, and their focus is principally on the science rather than the medicine. These chapters make particularly clear that there are many more classes of topo II- than topo I-active agents in development. The reasons for the paucity of chemical structures active against topo I are not obvious, and given the clinical efficacy of topo I poisons, this work reminds us that drug developers should make more effort in this area.

The great strength of the book lies in its accounts of how the enzymes are poisoned by the drugs, the details of the biochemical responses to the trapped cleavable complexes that lead to cell death and the mechanisms by which cells protect themselves from the drugs and rid their DNA of the trapped cleavable complex. Advances in these areas are not always in concert for the two enzymes, but it is abundantly clear that general progress in unravelling the nature of what happens after the cleavable complex is trapped is proceeding apace. The biochemical details of how the trapped enzyme interferes with transcription and DNA replication, and how the proteosome is recruited to remove the block, are beginning to make riveting reading.

The two chapters on the use of yeast systems to help understand the mechanism of action of topoisomerase poisons are particularly informative, and their inclusion here is welcome, since it would undoubtedly benefit the field if more investigators were aware of, and adopted, these approaches.

So, in short, the book is a good read and very informative for the scientist interested in the molecular pharmacology of topoisomerase-targetted cancer drugs. However, I suspect the science is a might intense for the practising clinician, although if they persevered, they would discover that much progress is being made towards answering the question "how does trapping the cleavable complex lead to tumour death?". This is an important question to resolve, since knowing the answer is bound to lead to better clinical outcomes, either by the development of new agents, or the better use of the ones we already have.

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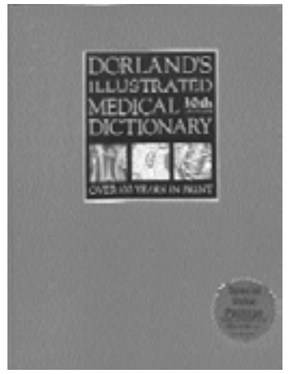
Dorland's Illustrated Medical Dictionary (30th edition)

Published by Saunders (2003)
ISBN: 0-7216-0146-4. 2190 pages.
RRP: A$82.50

The 30th edition of Dorland's Illustrated Medical Dictionary has maintained its established standard.



It has drawn consultants from clinical, laboratory and research fields and is as comprehensive as would be expected in a publication of this calibre.

The vocabulary is not limited to traditional terms, but embraces areas such as complementary medicine and alternative treatments. The appendices are a useful compendium of established and new knowledge, presented in a readily accessible manner within anatomical areas providing ready access to equivalent names, origin, branches and distribution. An appendix on cancer staging is also a useful addition.

The referencing of individual items is clear and when a distinct anatomical description is made, for example canal, every location of canals is clearly explained and identified so that some time may be spent exploring beyond the originally sought structure. The reviewer found himself doing this on a number of occasions.

The publisher provides the purchaser with a CD-ROM that expands the role of the dictionary, and the website provides a number of benefits for the occasional user and the committed scholar. These add significant value to the standard dictionary approach.

The dictionary provides a valuable resource as a ready-reference and frequently provides a level of insight into a subject that would be expected in a monograph rather than a dictionary.

Whenever professionals need to be sure they are using the correct word in its correct sense, Dorland's is a reliable source and value for money.

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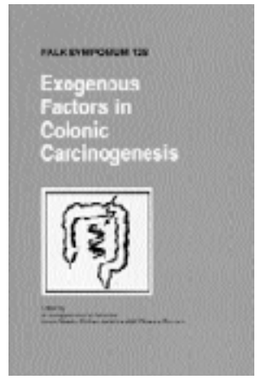
Exogenous Factors in Colonic Carcinogenesis

W Scheppach and M Scheurlen (eds)

Published by Kluwer Academic Publishers (2003)
ISBN: 1-7923-8780-5. 315 pages plus index.
RRP: US$188.00

It is well known that smoking, dietary fat, lack of fibre and lack of exercise increase our risk of cancer. However, even those of us who behave ourselves have to confront an ever-increasing and confusing tyranny of do's and don'ts. Reports of the carcinogenic properties of heterocyclic amines in red meat have us nervous at barbecues, even if we have no idea what they are! Is it one, two or no glasses of red wine? Are we damned anyway by genetic susceptibility, over which we have no control?



While the genetic view of cancer that arose in the 1990s seemed to point clearly to how carcinogens wrought their havoc, the mechanisms are in reality far from simple. Long-term exposure to potent carcinogens does not always lead to cancer while a blameless life does not always offer protection. Even with the completion of the human genome project there is a very long way to go in understanding of gene:gene and gene:environment interactions that determine our risk of cancer.

Exogenous Factors in Colonic Carcinogenesis sets out to identify the interfaces between the genetic background and the environment for the second most common cause of cancer-related mortality in Western society. Compiled from a symposium held in Wurzburg, Germany in the Spring of 2002, its sections include epidemiology and risk assessment, identification of genetically-determined risk groups and a swag of dietary and lifestyle factors. On the whole the chapters are well-written and referenced, and are fairly accessible to the informed reader. Unfortunately this compilation is spoiled by a very poor layout of chapters often leading to repetition of ideas without any additional insight. I had to read "Colonic cancer is a multistep process…" a dozen times when I think most people who would read such a book might have got it the first.

The opening section ends with the excellent and insightful review by MJ Hill on the epidemiology of colorectal cancer

when it should have started with it. Chapter two, at one page long and non-referenced, should not have been included (likewise brief and seemingly pointless one page commentaries on obesity and bile acids) and chapter three which describes gene polymorphisms would have been better suited to section two covering genetics and molecular mechanisms. It is this very poor editorial job that detracts considerably from what otherwise could be a very useful précis of this area. Perhaps the editors felt they needed to give everyone who attended the symposium a chance to air their views. It may have been better to summarise these brief commentaries in one chapter, to have given them more space to develop original ideas with appropriate referencing, or to omit them completely.

In summary there is much of interest in this book and there was plenty I could take away from some of the excellent brief reviews. Despite the criticisms on editing, I would recommend this book to anyone wishing to gain a rapid insight from recognised experts into the discourse on risk factors for colon cancer.

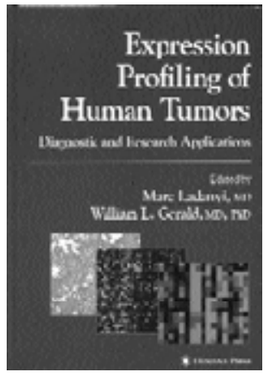
N Zeps
WA Research Tissue Network
Nedlands, WA

Expression profiling of human tumors: Diagnostic and research applications

M Ladanyi and WL Gerald (eds)

Published by Humana Press (2003)
ISBN: 1-5882-9122-7. 391 pages plus index.
RRP: A$175.00

In the field of cancer research, few recent methodologies have sparked more excitement, or indeed more capital expenditure, than the use of gene arrays to analyse gene expression in neoplastic cells and tissues.



This is perhaps not surprising, for this approach lies at the intersection of three of the greatest technological advances of the late 21st century, namely molecular biology, robotics and bioinformatics. The fact that gene expression analysis emerged at a time when the hyperbole surrounding the human genome project was at its peak, also served to propel this nascent technology into the scientific limelight. Now, four to five years after the fruits of this technology were first reported in the scientific literature, it is timely that the process be reappraised.

Expression Profiling of Human Tumours: Diagnostic and Research Applications, edited by Marc Ladanyi and William Gerald, is a 399 page hardcover monograph which provides a clear and timely introduction to the promise and pitfalls of gene expression analysis in cancer.

In the first part of the book, the reader is provided with a concise description of the three main technologies used to-date, namely cDNA arrays, oligonucleotide arrays ("gene chip technology") and SAGE (serial analysis of gene expression). Each of these approaches is discussed in a separate chapter, in a readable and balanced manner. While inevitably there is some repetition and redundancy because of the multi-author approach of the book, these introductory chapters are commendable in that they provide a realistic appraisal of both the strengths and weaknesses of the technologies described. They are also clearly written with the non-scientist in mind, and as much as is possible in this complex area, they provide a description of the techniques that is accessible to most health professionals or other interested readers. The section on general technology is itself prefaced by a short introductory chapter by the editors, which provides a highly readable and refreshingly candid appraisal of the benefits that this technology may bring to our understanding of the problem of human cancer.

Part one is rounded out by chapters on technologies that are complementary to the process of gene expression analysis, namely bioinformatics, tissue banking and the construction and use of tissue microarrays. Again these chapters are well written and would be of interest to a wide readership. In the second part of the monograph, individual chapters are devoted to a review of progress to-date using gene expression arrays in the setting of specific human cancers. Given the rapid pace of change, these chapters are likely to become redundant in a relatively short time, but they do provide insights into how the techniques have been used to address key questions in specific cancers. They also provide an excellent summary of both the current status of work, and the particular problems that arise in specific diseases. As such, these chapters would be of great interest to individuals currently involved in, or considering the initiation of, research in a particular form of malignancy.

Overall, this is a concise, current, well-written and well-edited book. It provides a succinct description of the core technology of gene expression analysis, and a realistic appraisal of its strengths and weaknesses. It is a book that would appeal to a relatively wide range of readers, including clinical oncologists, pathologists, and other healthcare professionals with an interest in cancer and cancer genetics. It would also be of interest to scientists active in the area of cancer, since it provides a comprehensive overview of this challenging area, as well as an authoritative review of achievements to-date in a wide range of human malignancies.

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Sydney, NSW

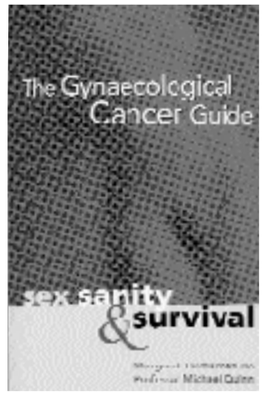
The Gynaecological Cancer Guide: Sex, sanity & survival

M Heffernan and M Quinn

Published by Michelle Anderson Publishing (2003)
ISBN: 0-8557-2332-7. 251 pages.
RRP: A$24.95

There are many books written about cancer, ranging from the self-help types to the highly technical tomes, but this book by Margaret Heffernan and Professor Michael Quinn is in a class of its own. It is primarily addressed to the women who have been diagnosed with some type of gynaecological cancer, their families and carers. It does not offer quick-fix solutions nor does it minimise the challenge and trauma that must accompany any diagnosis of cancer, but it does present an informative and realistic picture.

The first part of the book deals with the physical aspects of



the various cancers, describes them and their treatment in easily understood terminology, and also provides practical ideas about how to deal with the diagnosis and treatment. The emotional, spiritual and sexual aspects of the disease are also addressed, hence the title.

The authors use language that is easily understood, avoiding medical jargon but using the technical words that any patient will come across when dealing with the health system. An excellent glossary provides explanations for the medical terms.

Throughout the book are quotations from several survivors, at various stages of their journey. These remarkable women speak with pathos, honesty, despair and humour about their situation, and their quotes are collectively a pleasure to read.

A number of contributors have added sections dealing with their own areas of expertise. The section on lesbian women is aimed more at health service providers than survivors, and it tends to highlight the lack of sensitivity and support offered to patients and their partners. The section on complementary therapies is very informative, and goes far beyond the usual relaxation and yoga routine. For those practitioners who are hermetically and myopically attached to the mainstream medical model, I suggest that this chapter would make interesting reading, if not for their own edification, at the very least to see what their patients are up to!

The chapter on culture presents a minor difficulty. Throughout the book, the message is driven home that each woman's response is individual, but nonetheless valid. In this section, the "culture" referred to is North African and Middle Eastern. The impression is wrongly given that women from these cultures have a particular and uniform response that is culturally determined. It seems to me that what the contributor is suggesting has more to do with socio-economic status than with culture. Beyond that, how does one deal with patients from Latin America, or the sub-continent, or South-East Asia? If any health professionals are looking to this guide for help in dealing with women from other cultures, and have no other resources, I fear that they are likely to offend some of their patients.

This book should find a place in every gynaecological oncology unit, in every women's health centre, and in every public library. It is a book that anyone who has been touched by gynaecological cancer will find not only informative and challenging, but also uplifting.

E Koussidis
Parkside, SA

Head and Neck Cancer

B Brockstein and G Masters (eds)

Published by Kluwer Academic Publishers (2003)
ISBN: 1-4020-7336-4. 370 pages plus index.
RRP: US$150.00

This book is part of the Cancer treatment and research series edited by Steven Rosen of Northwestern University Medical School, Chicago, USA. Approximately 40 titles in this series have been published over the past decade covering a range of topics and speciality areas related to cancer therapy and research.

The volume reviewed, Head and Neck Cancer, was edited by Bruce Brockstein and Gregory Masters, both from Evanston Northwestern Health Care and the Robert Lurie Cancer Centre of Northwestern University Chicago. The book has 370 pages and contains 15 chapters covering a range of topics including epidemiology staging and screening, oral pre-neoplasia and chemoprevention, the treatment of early and advanced stage head and neck cancer, modified fractionated radiotherapy and re-irradiation, organ preservation, the management of unresectable disease, new and novel therapies and quality of life. There are 29 contributing authors, including the editors, and a small number of the contributors are recognisable as having a high profile in the head and neck oncology community.

Overall the quality of the information presented in this relatively small book is high. It is important to point out however that the book does not attempt to be a comprehensive textbook on head and neck cancer. Rather its aim is to provide and "update" current treatment practices and research directions that are likely to be of interest to clinicians already working in the field of head and neck oncology or perhaps other general oncologists wishing to keep abreast of a speciality area with which they do not normally deal.

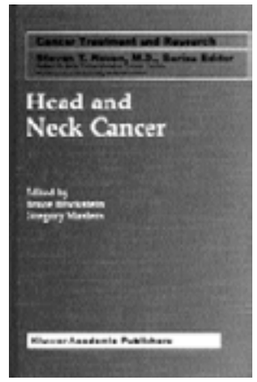
Despite the fact that multiple authors have contributed, the editors have done their job well since the writing, in general, is tight and the layout is compact. There is a relative paucity of illustrations and their quality is variable but this does not pose a significant problem. The strength of the book really lies in the breadth of coverage and the extent to which the literature, most of it relatively recent, has been reviewed. Some chapters have over 200 references, reflecting a high level of effort on the part of contributing authors.

As a practicing head and neck surgeon, this reviewer was critical of the depth of coverage of some clinical aspects of head and neck oncology but one must draw the conclusion that it was never the aim of the book to cover all areas comprehensively.

Of particular interest and benefit to this reviewer were chapters dealing with a pre-neoplasia and chemoprevention (chapter three), modified fractionation in radiotherapy (chapter seven), organ preservation with concomitant chemo/radiation (chapter nine), and the management of metastatic disease with chemotherapy and novel agents (chapter 12).

Importantly there is a very large amount of outcome data, all of which is well-referenced, while current research issues like viral oncogenesis, cancer genetics and molecular markers are introduced and covered succinctly and in a fashion that will not cause the non-academic reader to glaze over and go searching for the sports section of the newspaper.

This book is not necessarily for the residents or registrars in speciality training however clinicians doing a speciality fellowship in head and neck oncology will find it very useful, along with those already established in mainstream cancer practice.



C O'Brien
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Sydney Head and Neck Cancer Institute
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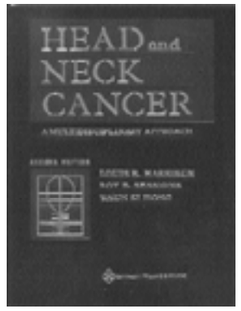
book reviews

Head and Neck Cancer: A multidisciplinary approach (2nd edition)

LB Harrison et al (eds)

Published by Lippincott, Williams and Wilkins (2004)
ISBN: 0-7817-3369-3. 1050 pages plus index.
RRP: A$437.80



The second edition of this textbook is destined to repeat the acclaim accorded the first edition.

The work is comprehensive in its display of the investigation and management of head and neck cancer and delivers some appraisal of basic science and molecular biology as they start to impact in the therapeutic arena.

Recognition that the best management of head and neck cancer patients depends on a multidisciplinary approach is encapsulated in the title and is honoured by the disciplinary diversity of the editorship and authorship of the various chapter topics.

The text is clearly written and displayed, and the illustrations (tables, line drawings, radiographs, clinical and pathological photographs) are excellent in their clarity and relevance. The treatment algorhythms are helpful in displaying the decision sequences and the range of treatment possibilities – providing a summary after detailed reading or an instant reminder when quick review of a subject is required. The algorhythms also instantly display some of the multidisciplinary integration.

The separated discussion and referencing on "radiological imaging concerns" and "radiotherapeutic techniques" within many of the specific cancer chapters is a helpful advance from the first edition.

The editors have enlisted authors from many centres of high repute to ensure a broad view but it is virtually totally North American in its authorship, its referencing and its general therapeutic approach. This slightly restricts the comprehensive view of some of the therapeutic approaches and will only minimally constrict its market.

This is an authoritative, comprehensive, well-presented textbook which will be a very valuable resource for any clinician involved in the management of head and neck cancer.

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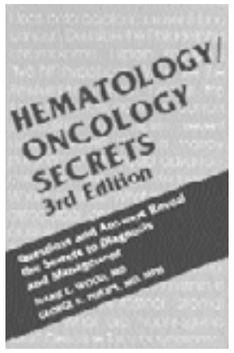
Hematology/oncology secrets: Questions and answers reveal the secrets to diagnosis and management (3rd edition)

ME Wood and GK Philips

Published by Hanley & Belfus (2003)
Distributed in Australia by Elsevier
ISBN: 1-5605-3516-4. 451 pages plus index.
RRP: A$77.00

The main goal of this text is to provide an overview of subjects and important references for medical students and residents studying for exams. Drs Wood and Philips have brought together an amazing 115 contributing authors to produce this text. This edition is the third of its kind and is divided into eight parts including general concepts of cancer (eight chapters) along with sections covering general haematology (16 chapters), malignant haematology (11 chapters), solid tumours (21 chapters), paediatric oncology (four chapters) and HIV-related diseases (three chapters). A further section is dedicated to cancer genetics (seven chapters) and finally the most comprehensive section deals with the general care of the cancer patient (24 chapters).



I must confess I only read the sections/chapters of interest to me. The section on breast cancer was concise and the discussion informative regarding the issues surrounding the treatment of early breast cancer. However, I was disappointed in the discussion of psychosocial aspects of cancer care as I found it somewhat superficial, and while the chapter on fatigue was detailed, it lacked current data on the benefits of exercise. In an effort to gain a more complete perspective I offered the text to a number of clinical nurses working in day oncology who found it informative and very useful as a quick reference.

Overall the text is readable and set out in a question and answer format which I personally favoured. It is informal in its approach and I was particularly impressed with how succinctly and practically some of the information is conveyed throughout the text. The book contains a number of colour plates depicting peripheral blood films of anaemia, leukaemia and lymphoma but few other illustrations. Clinical studies are mentioned throughout the text but disappointingly no direct references are given despite a bibliography appearing at the end of each chapter.

In summary, this book was designed for medical students and resident medical officers. I suspect it will be read, not only by its target audience, but by other healthcare professionals, as it is a very practical text and a suitable companion for health professionals working in the haematology and oncology environment.

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Herb-drug Interactions in Oncology

BR Cassileth and CD Lucarelli

Published by BC Decker (2003)
ISBN: 1-5500-9245-6. 467 pages plus index.
RRP: A$102.30 (includes CD-ROM copy)

This ultimately useful handbook is immediately striking in two respects. Firstly the misleading title. Anyone seeking specific data on herb-drug interactions will find small reward for their time. Secondly, in a refreshingly altruistic gesture, the entire text is freely available in its most up-to-date form at the Memorial Sloan-Kettering Cancer Centre (MSKCC) website.

This A5-sized text, complete with a CD-ROM mini-disk copy on the inside cover, is a compilation of 131 monograph style summaries of complementary and alternative medicines (CAM). Many of the CAM noted have no anti-cancer claims listed but presumably might be, or have been, utilised by cancer patients for other reasons. The majority of the book concerns herbal preparations but hydrazine, straight vitamins, and other pure substances are included, as are some non-substance therapies and monographs describing complex programs such as Di Bella multi-therapy, Hoxsey herbal therapy, and the Gerson method. The listings deal with these therapies very much as patients may obtain them rather than discussions focused around individual components. Readers wanting discussions on broad classes such as anti-oxidants, flavinoids or trace elements should look elsewhere.

The authors have taken an open but objective view in collating their information. They have structured the available information, which in some cases isn't much, into an easy to use, concise and referenced resource. Each monograph includes a clinical summary, details about constituents, adverse effects, interactions, as well as potential or purported benefits and problems.

This is the product of the MSKCC integrative medicine service – a service established to research and incorporate complementary therapies into mainstream oncology practice. The work is unique in its breadth and its attempt to present only objective information. It also brings together references that would be difficult, if not impossible, to identify and obtain in any sort of timely manner.

How might this text be used? In my estimation this information will prove most useful when a health worker in confronted with the management of a patient who wishes to continue or start CAM. Even though the available objective information for many of these is scant, this book is useful because it delivers a creditable objective summary that clinicians can use to quickly orientate their opinions. It represents a useful balance to the folklore and the promotional material of uncertain veracity that might arrive with a patient. This is not a text for those with a basic science interest in better-known substances, for example, glutamine and melatonin. Far more richly detailed reviews can be found elsewhere.

The authors have done a commendable job and are giving the information away, in its updated form, on the internet. As for herb-drug interactions in oncology, I didn't see a great many listed but believe this to reflect a lack of data rather than an omission by the authors.

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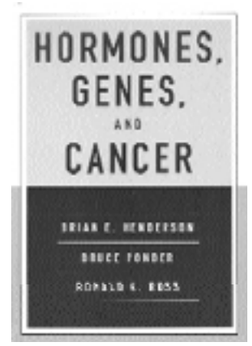
Hormones, Genes and Cancer

BE Henderson, B Ponder and RK Ross (eds)

Published by Oxford University Press (2003)
ISBN: 0-1951-3576-8. 435 pages plus index.
RRP: A$215.00



This monograph gives an authoritative and up-to-date account of the complex roles played by hormones and genes in the development of cancer. The epidemiology and biology of breast and prostate cancer is comprehensively reviewed, with a particular focus on the role of steroid hormones, their cognate receptors and their metabolism. Other hormone-related neoplasia such as endometrial, ovarian and testicular cancers are expertly reviewed and copiously referenced. The application of haplotype analysis, genomics and proteomics in genetic epidemiology and cancer biology is well summarised and will no doubt be expanded in future editions.

Polymorphisms in genes involved in hormone signalling pathways are discussed in some depth. A particularly useful aspect of this discussion is the critical appraisal of methods of statistical analysis that may account for differences in epidemiologic evidence. The contribution of growth factors and cytokines to cancer and cross talk between steroid hormones and other cellular signalling pathways merit greater attention than given in this volume.

This book should be a valuable source of information and ideas for cancer epidemiologists, basic scientists and clinical researchers in this exciting and expanding field of medical research.

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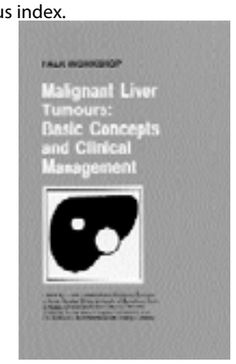
Malignant Liver Tumours: Basic concepts and clinical management

F Berr et al (eds)

Published by Kluwer Academic Publishers (2002)
ISBN: 1-7923-8779-1. 203 pages plus index.
RRP: US$96.00



Malignant Liver Tumours: Basic concepts and clinical management is a book based on a Falk workshop held in Leipzig, Germany in January 2002. The book has sections on molecular oncogenesis of malignant liver tumours, induction of hepatocellular carcinogenesis, clinical management of hepatocellular carcinoma, experimental approaches to new

therapies for hepatocellular carcinoma, cholangiocarcinoma and surgical treatment for prevention of recurrence of hepatocellular carcinoma. In all it has 21 chapters.

The review chapters on molecular carcinogenesis and induction of hepatocellular carcinogenesis, I thought, were very well written and interesting. I am afraid that the clinical aspects of this book are far from comprehensive. This is no criticism of the individual chapters that cover clinical aspects of care but it really doesn't comprehensively cover existing therapies at all adequately. There is nothing on screening and almost nothing on surgery. I think this book makes a useful contribution but must be seen as being of relatively specialised interest.

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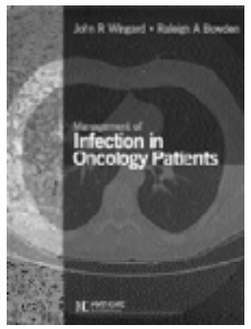
Management of Infection in Oncology Patients

JR Wingard and RA Bowden

Published by Martin Dunitz (2003)
ISBN: 1-9018-6598-3. 441 pages plus index
RRP: A$265.10



This book provides an excellent overview of the types of infections encountered during immunosuppressive therapy, although its focus is patients with haematological malignancies. It would be a valuable addition to the library of centres treating cancer patients and a useful addition to the texts available to infectious diseases physicians, haematologists, oncologists and trainees in these disciplines.

The strength of this book is the detailed analysis of risk factors for infection and the description of infection syndromes among patients with haematological malignancy or undergoing stem cell transplant. The editors and authors are recognised experts in the field and their practical experience results in a useful text. Of particular use is the description of a thorough approach to assessment of infection risk in the individual patient in the context of underlying condition, prior therapy, and presenting clinical syndrome.

The discussion of patient factors and cancer treatment modalities contributing to the development of infection as well as newer diagnostic approaches and antiinfective therapies is up-to-date and reflects current practice. For example, newer therapies such as Rituximab, Alemtuzumab pegfilgrastim and antifungals such as caspofungin and voriconazole are discussed. The chapters dealing with the management of hepatitis, CMV and fungal infections are state of the art. Although most topics of importance are covered in this book including respiratory viruses, infection control and vaccination, some such as Strongyloides, hyperinfection and Tuberculosis are not.

Although overall management is discussed, drug treatment details are not comprehensive. For example, doses of drugs, duration of therapy and treatment algorithms are not detailed. Although the title refers to oncology patients, most of the information is geared towards haematology patients and stem cell transplant recipients. The chapter dealing with infection in solid tumour therapy almost exclusively discusses management of the febrile neutropenic patient. Broader infection issues relevant to the oncology patient, such as the infection problems encountered by patients undergoing treatment for head and neck malignancies, patients undergoing radiotherapy and surgical oncology patients, are not addressed.

While each chapter can be read as a stand-alone monograph, there is repetition and the editing could be tightened. For example the management of febrile neutropenia and catheter-related infections, information relating to treatment guidelines and the use of growth factors are repeated in several chapters. The flow diagrams and tables, where provided, are extremely helpful, for example in the excellent chapter on hepatitis virus infections in patients with cancer, but in some other chapters, summaries or tables are needed.

Despite these criticisms, overall this book meets a gap in published information dealing with the complex interplay of the host, microbe and environment which produces the range of infections seen in the immunosuppressed. Recognition of infection patterns as described here will provide a strong, up-to-date knowledge base for approaching the management of the individual patient.

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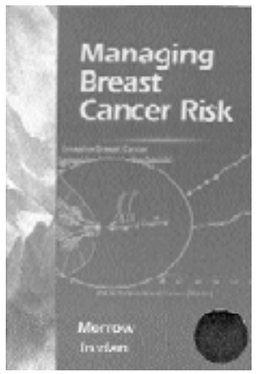
Managing Breast Cancer Risk

M Morrow and V Craig Jordon

Published by BC Decker (2003)
Distributed in Australia by Elsevier
ISBN: 1-5500-9260-X. 293 pages plus index.
RRP: A$157.30



This is an excellent, thought-provoking, stimulating and extremely well-researched book. Reading each chapter reminds me of the best talks or presentations that I have heard at various breast meetings over the past five years.

The book looks specifically at breast cancer risk and is divided into two sections, the first being the evaluation of risk, and the second, risk management strategies. Chapters on clinical risk assessment, familial, endocrine and lifestyle risk factors cover the evaluation of risk section. Two excellent chapters in this section relate to the risk of benign breast disease and the specific risks associated with this, eg atypical ductal hyperplasia and radial scar. A final chapter that puts the breast cancer risk into context with other risks that women are exposed to, in particular, the risk of other cancers such as colon and lung and coronary artery disease.

The second section looks at routine surveillance strategies and has a particularly good chapter on newer imaging techniques, in particular, covering full field digital mammography, computer aided diagnosis (CAD) and the rapidly expanding role for MRI in breast disease. A chapter on epithelial sampling, including ductal lavage, random FNA and random core biopsies, is included.

The next section of the book is on chemoprevention and an excellent general introduction by Craig Jordon is followed by chapters on Tamoxifen, other SERMs aromatase inhibitors and a thoughtful summation of chemoprevention and its relationship to the quality of life of women at high risk of breast cancer.

The final section on prevention includes a well-balanced discussion on prophylactic mastectomy and oophorectomy and breast reconstruction.

I would consider this book to be a must for any member of the multi-disciplinary team managing patients with breast cancer. It provides detailed information and appropriate statistics, and is exceedingly well-referenced. It will certainly require a second edition within the next five years as the information is so up-to-date that events will overtake it.

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East Melbourne, VIC

Non-Hodgkin's Lymphomas

PM Mauch et al (eds)

Published by Lippincott, Williams and Wilkins (2003)
ISBN: 0-7817-3526-2. 844 pages plus index.
RRP: A$415.80

This handsome volume would be a valuable addition to the bookshelf of anyone involved in the management of patients with non-Hodgkin's lymphomas. The scope of the book is very wide and at 866 pages long, it is able to provide a quite comprehensive treatment of most of the critically important areas in lymphoma biology, aetiology, diagnosis, assessment and treatment. The editors, Peter Mauch, James Armitage, Bertrand Coiffier, Riccardo Dalla Favera and Nancy Lee Harris, are world famous experts in lymphoma and the list of more than 100 contributing authors includes many of the leading names in the field from all parts of the world. The book is beautifully produced and has 80 clear colour plates, including clinical photographs, imaging studies and photomicrographs.

The opening chapters provide a historical perspective on the evolution of our understanding of lymphomas and of the early development and subsequent refinements of chemotherapy and radiotherapy. The second section of the book contains chapters on diagnosis, staging and initial evaluation. The chapter by Nancy Lee Harris on REAL and WHO lymphoma classifications is particularly valuable. The description of procedures for primary diagnosis and appropriate handling of specimens is practical and detailed and the imaging section contains useful information on structural and functional imaging, including the role of PET scanning. In the brief third section of the book there are chapters on the principles of modern chemotherapy, radiotherapy and biological therapy. The core of the book is the extensive fourth section that covers in detail the pathology, evaluation and treatment of individual clinical entities. These disease entities are described in 19 chapters, each devoted to a single disease or related group of diseases such as diffuse large B cell lymphoma or the follicular lymphomas. This is the section of the book most useful to clinicians and it provides information in a readily accessible form that is highly clinically relevant.

In the fifth short section of the book, there is a useful discussion of late effects of treatment and quality of life in lymphoma patients. The sixth section comprises eight chapters on a range of special topics, including management of lymphoma in children, management of the elderly patient with lymphoma and treatment during pregnancy. The final section contains seven detailed chapters on lymphoma biology, including developmental and functional biology of B and T lymphocytes, the role of infectious agents and molecular genetics.

This is probably the most comprehensive, authoritative and useful book currently available on the topic of non-Hodgkin's lymphoma and I cannot recommend it too highly.

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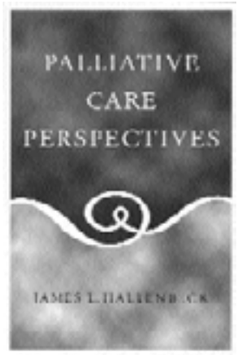
Palliative Care Perspectives

JL Hallenbeck

Published by Oxford University Press (2003)
ISBN: 0-1951-6577-2. 225 pages plus index.
RRP: A$49.95

Palliative Care Perspectives is a book designed to be an introduction to the core areas of palliative care for those relatively new to this topic. It is not a textbook nor is it intending to be. Instead it is a sharing of the author's experiences and his offering of how he manages different problems. Published data and current evidence are used throughout the book to support the author's views however this does not seem to interfere with the very conversational style of the text. The book has many personal stories and anecdotes that show the human side to the work of palliative care and also help the author illustrate the effect of interventions. I found the style of writing easy to read, and it was at times almost like having a discussion about palliative care with a colleague.



The author has set out to cover many areas of palliative care to help the reader develop a broad understanding of what palliative care is. The chapters of the book include those expected ones on pain management, non-pain symptom management and areas of psychosocial and spiritual care. Some specific information is given in relation to pain and symptom management however the book was not intended to be a clinical manual and is more about the principles of management. It also has a good chapter on communication as well as interesting ones on the palliative care consult and the last 48 hours. The chapter on communication has many suggestions as to how various topics can be addressed with patients and families as well as specific ways to phrase those difficult questions, much of which I found useful. Scattered

throughout the book are brief "palliative care notes" which highlight the key principles the author has identified in his own practice. They do come with some bias, as does the whole book, however it is this very personal approach the author has taken that contributes to the book's appeal.

Some of the content has a very North American focus, particularly in relation to the drug names (many proprietary names are used) and issues discussed relating to the problems within the health system. However, many of the issues discussed are easily identified with here in Australia and the reader has no difficulties in gaining a real insight into many of the topics covered.

Overall Palliative Care Perspectives is a good introduction to palliative care. As the author states, it is not a textbook, but rather an outline of the fundamentals of palliative care. As well as having this broad focus, it also has specific management plans outlined for some of the more common and more difficult situations encountered, all of which would prove valuable for a clinician new to palliative care.

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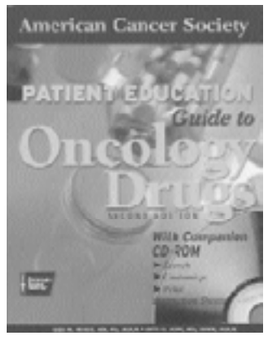
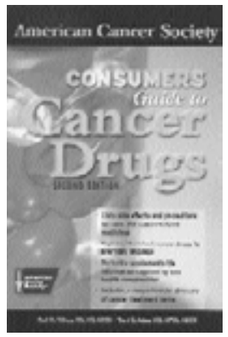
Patient Education Guide to Oncology Drugs (2nd edition)

GM Wilkes and TB Ades

Published by Jones & Bartlett Publishers Inc (2004)
ISBN: 0-7637-2253-7. 529 pages plus index
RRP: A$219.00





Consumers Guide to Cancer Drugs (2nd edition)

GM Wilkes and TB Ades

Published by Jones & Bartlett Publishers Inc (2004)
ISBN: 0-7637-2254-5. 530 pages plus index
RRP: A$50.95

Patient Education Guide to Oncology Drugs is a reference text for health professionals to help provide basic information for cancer patients and answer their most commonly-asked questions about cancer-related drugs. Included with the book is a CD-ROM containing a comprehensive list of patient drug information sheets that can be tailored to suit personal needs.

The book is split into two sections. The first section, which discusses cancer treatment drugs, is subsequently divided into three chapters. Chapter one covers a number of broad topics that involve all chemotherapeutic drugs. It provides simple but informative explanations on difficult concepts such as the principles of chemotherapy, chemotherapy drug groups, drug administration, a general overview of the most common side effects of all chemotherapy and a description of vascular access devices. While the information in this chapter will not interest all cancer patients it will give the educator a foundation from where to start with patient-friendly explanations. The second chapter gives a brief and less informative overview of molecularly-targeted drugs. The remaining chapter includes a comprehensive list of both the most common cancer treatment drugs on the market today, including hormonal and biologic drugs, as well as several agents that are either still investigational or not in use in Australia. Each drug is profiled under headings such as drug administration, necessary precautions and side effects specific to that drug. These drug profiles match the profiles on the CD-ROM.

The second section discusses a wide ranging list of symptom management drugs including analgesics, antibiotics, antifungals, antidepressants, antianxiety agents, antiemetics, antidiarrhoeal agents, laxatives, biological response modifiers, cytoprotectives, bisphosphanates, hormones, diuretics and steroids.

This book and CD-ROM could prove to be a helpful tool for those people educating patients about their treatment. Although there is a vast amount of information in the book and CD-ROM, it is written in basic language, is easy to read and as such follows the golden rule for patient education: keep it simple. It is an excellent guide for educators on the level of language and explanation that is needed for patients to understand new and difficult concepts.

I have two major criticisms. The first is that while the side effect profile for most drugs is adequate, for a minority of drugs there are a few specific and important side effects that have not been mentioned. The second is that there are no written explanations on how to cope with specific side effects. It will be important that the health educator refers back to a more comprehensive text and tailors the CD-ROM drug profiles to suit the individual needs of both the patient and their cancer facility protocols.

Overall this book would serve as a useful resource in any cancer facility. It would set the tone for the level of information given to cancer patients and maintain the consistency of information. There would however need to be supplementation of educational material in order that patients are fully informed on how to minimise side effects.

The Consumers Guide to Cancer Drugs is a book that has been designed specifically for consumers in order to answer their most commonly-asked questions about cancer-related drugs.

It is exactly the same as the Patient Education Guide to Oncology Drugs but minus the CD-ROM. The second section is followed by an informative glossary explaining cancer and drug terminology.

This book is written in simple language and explains new and difficult concepts in a comprehensible way. There is however far more information in it than the average Australian patient education booklet and although some patients would find it of interest there are others who would be overwhelmed with the sheer volume of material presented in the book. For those who are interested it will maintain a consistency of information that they seek.

A major criticism is that while the side effect profile for most drugs is adequate, for a minority of drugs, there are a few specific and important side effects that have not been mentioned. If this book is to be recommended to patients it will be important that patients are given instructional and educational drug profiles that suit their individual needs.

Overall this book would serve as a useful resource for those consumers with a reasonable level of literacy. It would maintain the consistency of information these patients often seek and receive. There would however need to be supplementation of educational material in order that patients are fully informed on how to remedy the side effects from the cancer related drugs. I would not recommend it as first line reading material – it is too vast and generalised.

V Freeman
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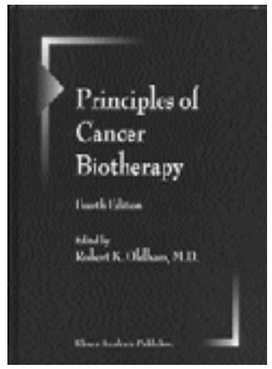
St Leonards, NSW

Principles of cancer biotherapy (4th edition)

RK Oldham (ed)

Published by Kluwer (2003)
ISBN: 1-4020-0706-X. 680 pages plus index



RRP: US$211.00

In the 21st century, the concept of the nice thick textbook is a slightly uneasy one. On one hand, readers want access to complete and authoritative reviews, and it's still much nicer to read paper than computer screens. On the other hand, by the time a textbook is published it is usually out-of-date, the contents are rarely available electronically, and picky book reviewers always say that it is too detailed or too superficial. Still, if you want to know the difference between a momab, a ximab and a zumab, I can tell you that PubMed won't help.

Oldham, an old and respected name in biological therapy for cancer, has produced the fourth edition of this well-respected book and has plans to bring out future editions at four-year intervals. The chapter authors are predominantly American although some well known Australians figure prominently also. The content is extraordinarily comprehensive, ranging from chapters on general principles and overviews of the field, through to the nuances of drug and toxin immunoconjugates, and all points between. Each chapter is well written and for the most part very thorough, with the exception of the overview chapters which necessarily skimp on details. The amount of work each author has put in is quite remarkable; one chapter has over 2000 references. Many chapters are extremely comprehensive and are thus a substantial snapshot of the state of the field at the time of writing.

As expected, the main problem with this book that was published in 2003 is that the references are generally not up-to-date. It was rare to find references more recent than 2000. This shows up in references in the text to only six human TLRs, or 23 interleukins (including the now discredited IL-14 that is probably not real). Some extremely important work such as that of Phil Greenberg is not included at all. The other problem is of annoying typographical errors, such as labelling a figure as breast cancer when it is melanoma, major errors in some reference citations (sometimes not even appearing in the reference list, as for one Hersey citation), and the title of chapter 20 in the contents list is completely wrong, having obviously been cut and pasted from a previous edition. Some authors though have taken great pride in their references: chapter 21, written by the editor, contains 32 references of which 31 were his own work (the other one refers to the same Medawar quote he included in chapter one).

Overall, though, there is little to fault and much to be learned. I will keep this one nearby on my desk and I recommend it for serious students of biological therapy. And the momabs, ximabs and zumabs? They're mouse, chimeric and humanised monoclonal antibodies respectively. Aren't you glad you read down to here?

ID Davis
Austin Health
Ludwig Institute for Cancer Research
Heidelberg, VIC

Prostate Cancer Sourcebook

DD Matthews (ed)

Published by Omnigrahics (2001)
ISBN: 0-7808-0324-8. 322 pages plus index.
RRP: US $78.00

This book is one of 90 books in a series of health books written for consumers covering all aspects of health ranging from the Food and Safety Sourcebook and Forensic Medicine Sourcebook to the Mental Retardation Sourcebook [see Cancer Sourcebook review in this issue]. Much of the book is sourced from the National Cancer Institute, other leading American agencies and recently published papers. Each chapter is referenced.

The book provides an overview of cancer and puts prostate cancer into some context for the reader by discussing the five top cancers in American men. There is also information on the racial/ethnic prostate cancer patterns in the US and a concise section on metastatic cancer.

Comprehensive information about treatment options, clinical trials, complementary and alternative therapies are given in detail, albeit to an American audience. Information about urinary incontinence and impotence is provided, although it is difficult for the reader to follow, as it is given in different sections and isn't prostate cancer specific. While the language is simple to understand, the issues discussed are fairly lengthy and many of the problems men with prostate cancer may face appear to be glossed over.

Quite a proportion of the book is dedicated to non-malignant prostate conditions, other related concerns and current research initiatives underway in America. A useful glossary is given, as is information about seeking financial assistance, support groups, websites and services for people with cancer,

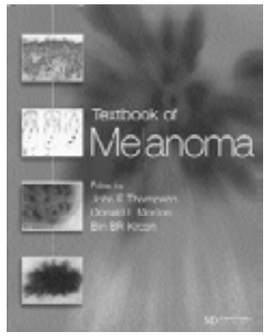
once again for the American audience.

Overall the book provides comprehensive information about the prostate and all other related conditions including sections on health and emotions after cancer, as well as current studies and clinical trials.

R Metcalfe
The Cancer Council Victoria
Carlton South, VIC

Textbook of Melanoma

JF Thompson et al
Published by Martin Dunitz Ltd (2004)
ISBN: 1-9018-6565-7. 679 pages plus index
RRP: A$685.00



This is a substantial publication. Measuring 282 x 222 x 40mm and weighing over 2.8kg it is nearly double the size of previous monographs on the subject. For that you get a clearly set text, high paper quality and an abundance of consistently formatted coloured illustrations and tables. More importantly, the quality of the content lives up to the scale of its presentation.

The international panel of contributing authors is well balanced by geography and discipline. It includes 33 Australians (17 with links to the Sydney Melanoma Unit), 31 from Europe, 23 from the US and representatives from UK, Canada, Brazil and New Zealand.

The 64 chapters are arranged in 14 sections covering history; biology; epidemiology; pathology; staging; diagnosis; surgical management of the primary and of regional nodes; childhood melanoma; local and loco-regional recurrence; surgery for distant metastasis; systemic therapy; non-cutaneous melanoma and management guidelines.

Neville Davis, Helen Shaw and Bill McCarthy combine to provide an entertaining and informative introductory chapter on the history of melanoma, from the mummified remains of pre-Colombian Peru through the resection of a metastatic deposit by John Hunter in 1787, the description of the disease by Rene Laennec in 1804, of amelanotic melanoma by Sir James Paget in 1853 and the recognition of the harmful effects of sun exposure by Unna in 1894. Modern surgical treatment dates from the work of Snow in 1892 and particularly the Hunterian lectures by Handley in 1907, in which he recommended wide local excision (involving amputation if the primary were on a digit) and regional lymph node dissection, which remained popular until its role was questioned by recent clinical trials.

Gary Halliday's chapter nicely summarises the role of the local skin immune system in the development of melanoma, while Rick Kefford, Graham Mann and Julia Bishop present a succinct update of the genetics of the disease.

Each of the chapters is separately referenced, and the references are reasonably up-to-date, given the delays that inevitably attend the compilation of the work of 94 authors. For example the chapter on staging refers to the development of the current (2001) AJCC staging system, but only as a footnote, while the bulk of the chapter is devoted to older schemes. This is offset by a good subsequent chapter by Charles Balch, Seng-jaw Soong and John Thompson that details the studies leading to the development of the new scheme.

The chapters on clinical diagnosis by Bill McCarthy and Gerry Milton and on surface microscopy by Scott Menzies and Wilhelm Stolz are replete with excellent colour illustrations. For the surgically inclined, the chapters on the various lymph node dissections come with line drawings and operative colour photographs.

Sentinel node biopsy is a major area of current research, well covered by Donald Morton and John Thompson, while Roger Uren and David Krag present the history of the technique. Several subsequent chapters discuss aspects of the procedure, though the need to await the results of the multicenter selective lymphadenectomy trial is acknowledged.

More specialised procedures including isolated limb perfusion and infusion are well described. An important series of chapters details the very real contribution of surgical excision of metastatic deposits in various sites. The uncertain role of radiotherapy is concisely reviewed by Graeme Stevens, while Rick Kefford and Ian Olver contribute chapters on management of advanced disease. It is unfortunate that the results of several randomised clinical trials, which failed to show additional benefit of bio-chemotherapy, were not available at press time. Immunotherapy has long held tantalising promise, but the relevant chapters chronicle the extent to which that promise remains elusive. Clearly, new agents will be required if systemic therapy is to make a meaningful contribution to the control of melanoma, and the chapter by Michael Millward describes the unrelenting but largely unsuccessful search for such agents.

Overall this is a thorough and valuable text, but in no sense can it be described as light reading.

A Coates
The Cancer Council Australia
Camperdown, NSW

CALENDAR OF MEETINGS

CALENDAR Of MEETINGS – AUSTRALIA AND NEW ZEALAND

Date	Name of Meeting	Place	Secretariat
2004			
March			
4-5	Research to Reality: The 6th National Breast Care Nurses Conference	Brisbane QLD	6th National Breast Care Nurses Conference Conference Manager OzAccom Conference Services PO Box 164 Fortitude Valley QLD 4006 Tel: + 61 7 3854 1611 Fax: +61 7 3854 1507 Email: breast2004@ozaccom.com.au Web: www.breastcarenurses2004.com
April			
14-17	Trans-Tasman Radiation Oncology Group Annual Scientific Meeting	Queenstown NZ	Pharma Events Ph: +61 2 9280 0577 Fax: +61 2 9280 0533 Email: conferences@pharmaevents.com.au
26-30	18th World Conference on Health Promotion and Health Education	Melbourne VIC	Conference Manager 15 Pelham Street Carlton VIC 3053 Tel: + 61 3 9667 1313 Fax: +61 3 9667 1375 Email: enquiries@Health2004.com.au Web: www.Health2004.com.au
May			
18-21	Australasian College of Dermatologists Annual Scientific Meeting	Brisbane QLD	Australasian College of Dermatologists 136 Pittwater Road Gladesville NSW 2111 Fax: +61 2 9816 1174
July			
14-16	Royal College of Nursing Australia National Conference	Alice Springs NT	RCNA Conference – Conference Solutions PO Box 238 Deakin West ACT 2600 Tel: + 61 2 6285 3000 Fax: + 61 2 6285 3001 Email: rcna@con-sol.com Web: www.rcna.org.au
August			
4-7	Medical Oncology Group Australia Faculty Radiation Oncology	Cairns QLD	Pharma Events Ph: +61 2 9280 0577 Fax: +61 2 9280 0533 Email: conferences@pharmaevents.com.au
8-12	International Society for Nurses in Cancer Care 13th International Conference on Cancer Nursing	Sydney NSW	MP Events Tel: +61 3 9418 3930 Email: kirsten@mpevents.com.au www.isncc.org
8-14	Australia & Asia Pacific Clinical Oncology Research Development (ACORD) Workshop	Palm Cove QLD	Medical Oncology Group of Australia Level 6, 52 Phillip Street, Sydney NSW 2000 Tel: +61 2 8247 6207 Email: fmarine@bigpond.com or mog@racp.edu.au

Date	Name of Meeting	Place	Secretariat
October			
21-24	Royal Australian and New Zealand College of Radiologists, Faculty of Radiation Oncology Annual Scientific Meeting	Perth WA	Event Edge Tel: +61 8 9387 1488 Fax: + 61 8 9387 1499 Email: info@eventedge.com.au Web: www.ranzcr.edu.au
November			
8-9	27th Annual Oncology Nurses Group Conference	Brisbane QLD	Oncology Nurses Group Conference Secretary Queensland Cancer Fund PO Box 201 Spring Hill QLD 4004 Tel: + 61 7 3258 2263 Fax: + 61 7 3257 1306 Email: ADewar@qldcancer.com.au Web: www.qldcancer.com.au
10-14	Leura V International Breast Cancer Conference	Sydney NSW	Leura V Conference Managers Tour Hosts Conference & Exhibition Organisers Level 4, 66 King Street Sydney NSW 2000 Tel: +61 2 9248 0800 Fax: +61 2 9248 0894 Web: www.bci.org.au/leura
21-26	Australian Health and Medical Research Congress	Sydney NSW	ASN Events Secretariat Tel: +61 3 5983 2400 Email: congress@asnevents.net.au Web: www.ahmrcongress.org.au
24-26	31st COSA Annual Scientific Meeting	Canberra ACT	31st COSA Annual Scientific Meeting Pharma Events Ph: +61 2 9280 0577 Fax: +61 2 9280 0533 Email: cosa@pharmaevents.com.au Web: www.cosa.org.au
2005			
October			
6-9	Royal Australian and New Zealand College of Radiologists, Faculty of Radiation Oncology Annual Scientific Meeting	Sydney NSW	RANZCR Level 9, 51 Druitt Street Sydney NSW 2000 Tel: +61 2 9268 9777 Fax: +61 2 9268 9799 Email: ranzcr@ranzcr.edu.au Web: www.ranzcr.edu.au

CALENDAR Of MEETINGS – International

Date	Name of Meeting	Place	Secretariat
2004			
March			
7-11	3rd World Assembly on Tobacco Counters Health	New Delhi India	Avnish Varma ICOOC M-38-A RAJOURI GARDEN NEW DELHI - 110027 India Tel: +91 11 2510 9397 Fax: +91 11 2544 7395 Web: www.watch-2000.org/
16-20	4th European Breast Cancer Conference	Hamburg Germany	EBCC 2004 Secretariat Federation of European Cancer Societies Avenue E Mounier 83 Brussels, Belgium 1200 Tel: +32 0 2775 0201 Email: ebcc4@fecs.be Web: www.fecs.be/conferences/ebcc4
18-21	57th Annual Cancer Symposium of the Society of Surgical Oncology	New York City New York USA	D K Kubis, SSO Arlington Heights Illinois, USA Fax: +1847 427 9656 Email: diannekubis@acaai.org Website: www.surgonc.org
27-31	95th Annual Meeting of the American Association for Cancer Research (AACR)	Orlando Florida USA	American Association for Cancer Research Philadelphia Pennsylvania, USA Fax: +1 215 351 9165 Email: meetings@aacr.org Website: www.aacr.org
28 Mar- 3 Apr	43rd Annual Meeting of the Society of Toxicology	Baltimore USA	Society of Toxicology 1767 Business Center Reston, VA - 22090 Fax: +1 703 438 3113
31 Mar- 3 Apr	12th Congress of the European Society of Surgical Oncology	Budapest Hungary	ESSO 2004 Secretariat Federation of European Cancer Societies Avenue E Mounier 83 Brussels, Belgium 1200 Tel: +32 0 2775 0201 Email: esso4@fecs.be Web: www.fecs.be/conferences/esso4
April			
29 Apr – 2 May	Oncology Nursing Society (ONS) 29th Annual Congress	Anaheim California USA	ONS, Meeting Services Team Pittsburg, Pennsylvania, USA Fax: +1412 921 6565 Email: meetings@ons.org Website: ww.ons.org
May			
8-13	99th Annual Meeting of the American Urological Association	San Francisco California USA	Office of Education American Urological Association 2425 West Loop South, Suite 333 Houston Texas - 77027-4207 USA Tel: +1 713 622 2700 Fax: +1 713 622 2898 Web: www.auanet.org/
June			
5-8	40th ASCO: Annual Conference for the American Society of Clinical Oncology	New Orleans LA USA	ASCO 1900 Duke Street Suite 200 Alexandria Virginia 22314 USA Tel: +17 0 3299 0150 Email: asco@asco.org

CALENDAR OF meetings

Date	Name of Meeting	Place	Secretariat
17-19	World Congress on Gastrointestinal Cancers	Barcelona Spain	Heather Drew Imedex 70 Technology Drive Alpharetta - 30005 - Georgia Tel: +1 770 751 7332 Fax: +1 770 751 7334 Web: www.imedex.com/calendars/oncology.htm
24-27	16th MASCC/ISOO International Symposium Supportive Care in Cancer	Miami Beach Florida USA	Amy Faber The Cleveland Clinic Center for Continuing Education C/O UNITECH Communications 9500 Euclid Ave. P17, Cleveland - 44195 - Ohio Tel: +1 216 444 8420 Fax: +1 216 444 8410 Web: www.clevelandclinicmeded.com/mascc/index.htm
25-29	23rd International Congress of Radiology (ICR)	Montreal Canada	International Congress of Radiology (ICR) 1740 Cote-Vertu Blvd Saint-Laurent Quebec - H4L 2A4 Canada Tel: +1 514 738 3111 Fax: +1 514 738 5199
July			
3-6	18th Meeting of the European Association for Cancer Research	Innsbruck Austria	EACR 18 Secretariat Federation of European Cancer Societies Avenue E Mounier 83 Brussels, Belgium 1200 Tel: +32 0 2775 0201 Email: eacr18@fecs.be Web: www.fecs.be/conferences/eacr18
22-24	International Skin Cancer Congress	Zurich Switzerland	Reinhard Dummer University Hospital of Zürich Department of Dermatology Gloriastrasse 31 Zurich - 8091 Switzerland Tel: +41 1 255 88 37 Fax: +41 1 255 44 03 Web: www.skincancer.ch/
August			
7-11	6th International Conference on Head and Neck Cancer	Washington DC USA	Robin Wagner Concepts in Meetings & Events 1805 Ardmore Blvd Pittsburgh - 15221 - Pennsylvania Tel: +1 (412) 243 5156 Fax: +1 (412) 243 5160 Web: www.headandneckcancer.org/
25-28	7th World Congress of Psycho-Oncology	Copenhagen Denmark	The Danish Cancer Society Strandboulevarden 49 Copenhagen - 2100 Denmark Web: www.ipos2004.dk/
September			
1-4	12th International Society of Endocrinology Congress	Lisbon Portugal	International Society of Endocrinology (ISE) 51-53 Bartholomew Close London - EC1A 7BE United Kingdom Fax: +44 171 796 4676
16-19	SIOP 2004: International Society of Paediatric Oncology	Oslo Norway	Congrex Holland BV PO Box 302 Amsterdam Netherlands 1000 AH Tel: +31 2 0504 0200 Email: siop@congrex.nl Web: www.siop.nl

Date	Name of Meeting	Place	Secretariat
23-25	9th Central European Lung Cancer Conference	Gdansk Poland	Department of Oncology and Radiotherapy Medical University of Gdansk ul Debinski 7 Gdansk - 80-211 - Poland Tel: + 48 58 349 2270 Fax: + 48 58 349 2270 Web: www.lungcancer.pl/
October			
3-7	ASTRO: 46th Annual Meeting	Atlanta USA	American Society for Therapeutic Radiology and Oncology 12500 Fair Lakes Circle Suite 375 Fairfax Virginia 22033 USA Tel: +17 0 3227 0170 Email: meetings@astro.org
3-8	10th Biennial Meeting of the International Gynecologic Cancer Society	Edinburgh Scotland	International Gynecologic Cancer Society PO Box 6387 Louisville, Kentucky, USA Tel: +1 50 2891 4460 Web: www.igcs.org
10-14	6th Congress of the European Association of Neuro-Oncology	Jerusalem Israel	Ortra 1 Nirim St PO Box 9352 Tel Aviv – 61092 - Israel Fax: +972 3 638 4455
15-16	The 9th International Conference on Geriatric Oncology: Cancer in the Elderly	San Francisco California USA	Heather Drew Imedex, Inc 70 Technology Drive Alpharetta - 30005 - Georgia United States of America Tel: +1 770 751 7332 Fax: +1 770 751 7334 Web: www.imedex.com/calendars/oncology.htm
24-28	23rd Annual European Society for Therapeutic Radiology and Oncology Meeting (ESTRO 23)	Amsterdam Netherlands	ESTRO 23 Secretariat Avenue E Mounier 83 Brussels, Belgium 1200 Tel: +32 2775 9340 Email: info@estro.be Web: www.estro.be
29 Oct- 2 Nov	29th European Society for Medical Oncology Annual Meeting	Vienna Austria	ESMO Secretariat via la Santa 7 CH-6962 Viganello-Lugano Switzerland Tel: +41 9 1973 1919 Web: www.esmo.org/congress2004
November			
5-7	Oncology Nursing Society Institute of Learning	Nashville Tennessee USA	Oncology Nursing Society 125 Enterprise Drive Pittsburgh Pennsylvania 15275-1214 USA Tel: + 1 86 6257 4667 Email: meetings@ons.org Web: www.ons.org
10-12	11th Hong Kong International Cancer Congress	Pokfulam Hong Kong	11th HKICC Congress Secretariat Dept of Surgery University of Hong Kong Medical Centre Queen Mary Hospital Hong Kong Tel: +8 52 2818 0232 Fax: + 8 52 2818 1186 Email: hkicc@hku.hk Web: www.hkicc.org

Date	Name of Meeting	Place	Secretariat
17-19	1st International Conference for Oncologists and Other Health Care Leaders	New York USA	Barrie Cassileth Memorial Sloan-Kettering Cancer Center 1275 York Ave New York - 10021 - New York Tel: +1 212 639 2000
December			
3-7	46th Annual Meeting of the American Society of Hematology	San Diego California USA	American Society of Haematology 1900 M street NW Suite 200 Washington DC 20036 USA Tel: +1 20 2776 0544 Email: meetings@hematology.org Web: www.hematology.org
3-6	27th Annual San Antonio Breast Cancer Symposium	San Antonio Texas USA	Cancer Therapy & Research Center SACI, Rich Markow San Antonio, Texas, USA Fax: +1210 949 5009 Email: Rmarkow@saci.org Web: www.sabcs.org
15-16	4th International Meeting of Hepatocellular Carcinoma: Eastern and Western Experiences	Wanchai Hong Kong	4th HCC-EWE Congress Secretariat Department of Surgery, University of HongKong Medical Centre Queen Mary Hospital, Pokfulam Tel: + 85 2 2818 0232 Fax: + 85 2 2818 1186 Email: hccewe04@hku.hk Web: www.hcc-ewe.org
2005			
January			
26-29	Primary Therapy of Early Breast Cancer	St Gallen Switzerland	Hans-Jörg Senn St. Gallen Oncology Conferences Rorschacherstr. 150 St. Gallen - 9006 Switzerland Tel: +41 71 243 0032 Fax: +41 71 245 6805 Web: www.oncoconferences.ch/index.html
February			
10-14	American Society for Blood and Marrow Transplantation Annual Meeting	Keystone CO USA	American Society for Blood and Marrow Transplantation 85 West Algonquin Road Suite 550 Arlington Heights Illinois 60005 USA Tel: +1 84 7427 0224 Email: mail@asbmt.org
March			
3-6	58th Annual Cancer Symposium of the Society of Surgical Oncology	Atlanta Georgia USA	D.K. Kubis - Society of Surgical Oncology 85 W Algonquin Rd Suite 55 Arlinghton Heights IL - 60005 Tel: +1 (847) 427 1400 Fax: +1 (847) 427 9656 Web: www.surgonc.org/
April			
16-20	96th Annual Meeting of the American Association for Cancer Research	Ahaheim California USA	AACR 615 Chestnut Street 17th Floor Philadelphia, PA USA 19106-4404 Tel: +1 21 5440 9300 Email: meetings@aacr.org
28 Apr- 1 May	Oncology Nursing Society's 30th Annual Congress	Orlando Florida USA	Oncology Nursing Society 125 Enterprise Drive Pittsburgh Pennsylvania 15275-1214 USA Tel: +1 86 6257 4667 Email: meetings@ons.org Web: www.ons.org

Date	Name of Meeting	Place	Secretariat
June			
2-5	EHA-10: 10th Annual Meeting of the European Haematology Association	Stockholm Sweden	Eurocongres Conference Management Jan van Goyenkade 11 Amsterdam Netherlands NL-1075 HP Tel +31 20 679 3411 Eha2005@eurocongres.com www.ehaweb.org
8-11	9th International Conference on Malignant Lymphoma	Lugano Switzerland	Olga Jackson Lymphoma Conference Secretary viale Cattaneo 23 Lugano - 6900 Tel: +41 91 921 4561 Fax: +41 91 921 4563 Web: http://www.lymphcon.ch/
23-26	2nd Quadrennial Meeting of the World Federation of NeuroOncology	Edinburgh Scotland	EANO 6 Secretariat Federation of European Cancer Societies Avenue E Mounier 83 Brussels, Belgium 1200 Tel: +32 0 2775 0201 Email: eano6@fecs.be
July			
3-6	11th World Conference on Lung Cancer	Barcelona Spain	Heather Drew Imedex 70 Technology Drive Alpharetta - 30005 - Georgia Tel: +1 770 751 7332 Fax: +1 770 751 7334 Web: www.2005worldlungcancer.com/2005WLC/
October			
16-20	ASTRO: 47th Annual Meeting	Denver Colorado USA	American Society for Therapeutic Radiology and Oncology (ASTRO) 12500 Fair Lakes Circle Suite 375 Fairfax Virginia 22033 USA Tel: +1 70 3227 0170 Email: meetings@astro.org
December			
2-6	47th Annual Meeting of the American Society of Hematology	San Diego California USA	American Society of Haematology 1900 M street NW Suite 200 Washington DC 20036 USA Tel: +1 20 2776 0544 Email: meetings@hematology.org Web: www.hematology.org

THE CANCER COUNCIL AUSTRALIA

The Cancer Council Australia is the peak national cancer control organisation. Its members are the leading state and territory cancer councils, working together to undertake and fund cancer research, prevent and control cancer and provide information and support for people affected by cancer.

MEMBERS
The Cancer Council ACT
The Cancer Council New South Wales
The Cancer Council Northern Territory
The Cancer Council South Australia
The Cancer Council Tasmania
The Cancer Council Victoria
The Cancer Council Western Australia
Queensland Cancer Fund

AFFILIATED ORGANISATIONS
Australasian Association of Cancer Registries
Clinical Oncological Society of Australia Inc
Palliative Care Australia

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Dr K White PHD

CLINICAL ONCOLOGICAL SOCIETY OF AUSTRALIA INC

The Clinical Oncological Society of Australia (COSA) is a multidisciplinary society for health professionals working in cancer research or the treatment, rehabilitation or palliation of cancer patients.

It conducts an annual scientific meeting, seminars and educational activities related to current cancer issues. COSA is affiliated with The Cancer Council Australia.

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MEMBERSHIP

Further information about COSA and membership applications are available from:
www.cosa.org.au or cosa@cancer.org.au

Membership fees for 2004

Ordinary Members: $140
Associate Members: $80
(includes GST)

INTEREST GROUPS

ANZ Children's Haematology and Oncology
Breast Oncology
Cancer Nurses Society of Australia
Cancer Research
Data Managers
Epidemiological
Gastrointestinal Oncology
Gynaecological Oncology
Lung Oncology
Medical Oncology
Melanoma and Skin
Neuro-oncology
Palliative Care
Pharmacy
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Radiation Oncology
Regional and Rural Oncology
Social Workers
Surgical Oncology