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Patients living with cancer

The role of rehabilitation

Background
Patients are surviving longer with cancer due to early detection and improvements in treatment. With longer survival, quality of life becomes very important. While improvements in treatment add years to the life of patients diagnosed with cancer, rehabilitation can add life to those years.

Objective
This article highlights the role rehabilitation can play in enhancing the quality of life for patients living with cancer.

Discussion
There are an increasing number of cancer survivors, creating the imperative to look beyond just survival. Potentially remediable problems may include pain, deconditioning and functional impairments. Patients with cancers of the breast, head and neck, musculoskeletal, central nervous system and peripheral nervous system, prostate, and metastatic cancer of the spine may particularly benefit from rehabilitation. Active engagement of oncologists, palliative medicine, general practitioners and rehabilitation specialists can be useful to assist in the rehabilitation needs of patients. In appropriate situations, patients with cancer should be offered rehabilitation services if they are likely to benefit.

Keywords: breast neoplasms, neoplasms; rehabilitation

Case history

Ms LW was an active woman in her mid 30s who was diagnosed with left sided breast cancer in 2007 and treated with partial mastectomy, axillary clearance and chemotherapy. In 2008, she developed multiple cerebral metastases (*Figure 1*) and was treated with dexamethasone and whole brain radiotherapy. Comorbidities were low back pain, depression, fracture of the coccyx, and herpes zoster infection with postherpetic neuralgia. She was under the care of oncology and palliative medicine teams. Following radiotherapy there was almost complete resolution of her brain metastases. However, she became deconditioned and declined functionally with activities of daily living and mobility, and often became fatigued following treatment for the cerebral metastasis. She reported some cognitive decline, which was also noticed by her father. She had ongoing pain around the hip joints.

A whole body scan showed skeletal metastasis to the left fibula and left fifth metatarsal bones, which were clinically asymptomatic (*Figure 2*).

Full blood examination showed: normal red blood cell indices, WBC 3.40 (normal range: 4–11 x 10^9/L), neutrophils 1.79 (normal range: 1.80–7.50 x 10^9/L); urea and electrolytes normal, calcium 2.18 (normal range 2.1–2.55 mmol/L), ionised calcium 1.18 (normal range 1.10–1.30 mmol/L), C-reactive protein 3 mg/L and normal liver function.

Ms LW's friends presented her with a ticket for a holiday cruise. She was unsure about going due to her poor functioning. A referral was made to a rehabilitation medicine physician with a view to improving overall function. After evaluation, Ms LW was admitted for an inpatient rehabilitation program.

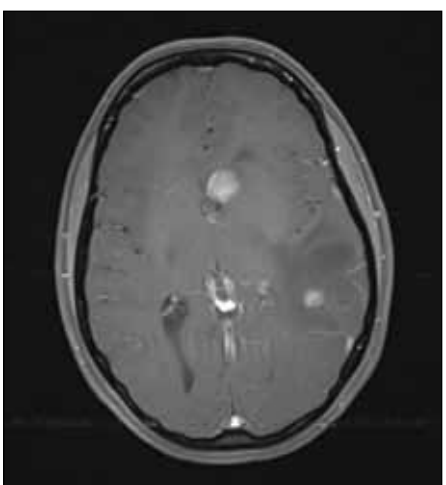

Figure 1. Multiple cerebral metastasis

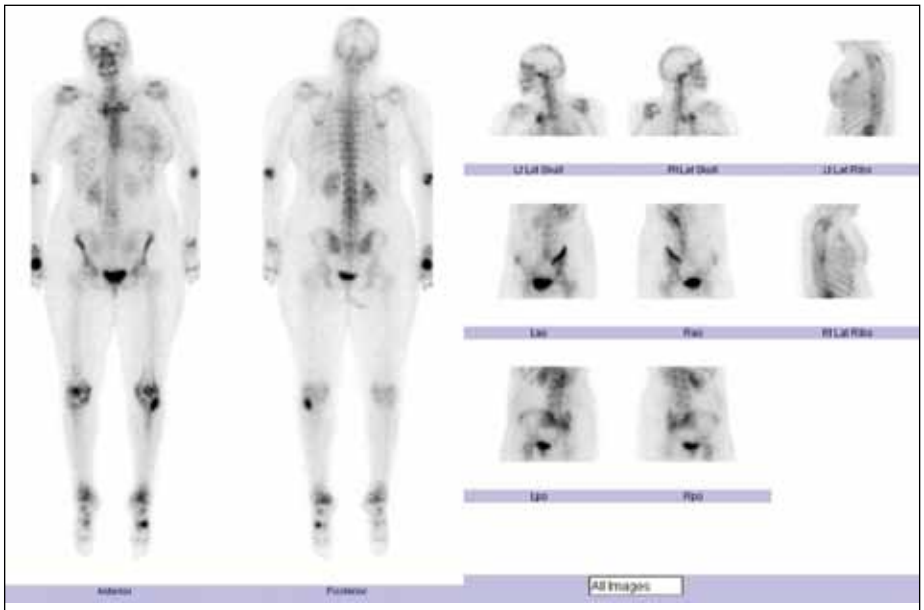

Figure 2. Whole body bone scan showing metastasis around left fibular head and fifth metatarsal

Ms LW was assessed by the multidisciplinary rehabilitation team including a physiotherapist, occupational therapist, nursing staff and social worker. An individually tailored rehabilitation program consisting of pain management, low resistance exercises and retraining of activities of daily living was carried out.

Management

Pain

Ms LW had significant pain around her hip joints. Examination revealed tenderness around the greater trochanters of both femurs. Ultrasound revealed bilateral trochanteric bursitis, which was causing her hip pain. This nociceptive pain responded well to radiologically guided injection with celestone and local anaesthetic. The amount of opioid medications could be reduced. The neuropathic pain due to postherpetic neuralgia (*Figure 3*) remained under control with pregabalin. Skeletal metastasis is an important source of pain in disseminated malignancy, however Ms LW did not have any symptoms in the sites of her skeletal metastasis. The following medications were prescribed as part of the management plan:

- hip pain: oxycodone controlled release 40 mg twice daily, ibuprofen 400 mg three times daily, and paracetamol 1 g four times daily
- neuropathic pain: pregabalin 150 mg in the morning and 75 mg at night
- other medications: venlafaxine extended release 300 mg (for depression), pantoprazole 40 mg twice daily, oxycodone immediate release and metoclopramide as required.

Weakness, activities of daily living and exercise program

Ms LW had weakness in her upper and lower limbs due to involvement of shoulder and hip girdle muscles which resulted in difficulty in carrying out activities of daily living such as showering and dressing (ie. latching her bra and doing buttons) and a decline in mobility. The weakness was due to myopathy following steroid therapy for cerebral metastasis. She had gained 20 kg in weight. Fatigue and the weight gain added to her weakness. Her father was assisting her with meal preparation, shopping, transport and finances.

Ms LW was commenced on an exercise program to address the weakness in her upper and lower limbs. The program consisted of low resistance, endurance exercises with low weights, balancing exercises and graded mobility training. On admission to the rehabilitation hospital, she was mobilising with a four wheeled walker but her gait was unsteady. She progressed steadily with therapy and became independent with transfers and could safely negotiate a flight of stairs. Before discharge Ms LW could mobilise 200 metres unaided. Retraining of activities such as dressing and showering were undertaken. The exercise program strengthened her muscles and she made gains with functional activities; a dietician advised on weight reduction.

Equipment for independent activities of daily living such as dressing aids and pick-up stick were provided and community services were organised following discharge. Ms LW maintained her independence with showering and dressing and found tasks such as meal preparation easier.

Fatigue

Ms LW had considerable fatigue due to her cancer. She was educated on work simplification and energy conservation and found these strategies helpful. She reported reduced short term memory problems and less confusion and inability to focus.

Cognition

Ms LW's cognitive symptoms were thought to be caused by a combination of narcotic medication adverse effects, chemotherapy and cerebral metastases. Opioid reduction led to some improvement in her cognition. Mini-Mental State Examination score improved from 28 to 30; although she noticed some decrease in short term memory. Her depression remained under control with antidepressant medication.

Ms LW remained medically stable throughout the 2 weeks of in-patient rehabilitation and showed significant improvement in her symptoms and overall functioning. Her functional independence measure (FIM) improved from 106 on admission to 125 before discharge. Functional independence measure is a 7 point scale which measures disability and assesses the burden of care and the type and amount of assistance required for a person with disability and is a widely used tool in rehabilitation settings.[1]

Case follow up

Ms LW went on the cruise with her friends without encountering any major problems. She was independent with her showering, dressing and walking along the passageway of the boat. She used a wheelchair for longer distances and for going upstairs (with assistance from her friends). She plans to live independently under the care of her general practitioner, oncologist and support services organised by the palliative care team.

Figure 3. Herpes zoster – S2 dermatome

Discussion

Although cancer pain is a critical issue for people with cancer, many can have pain due to a number of musculoskeletal conditions not directly associated with the cancer. Careful evaluation is needed to ascertain the cause of pain and many conditions may be amenable to local measures as illustrated in the *Case history*.

Skeletal metastasis is an important source of pain in disseminated malignancy. However, there are some effective ways of treating bony metastasis including: nonsteroidal anti-inflammatory drugs, steroids, bisphosphonate medications, localised radiotherapy, splintage, and surgical interventions in appropriate cases.

Steroid induced myopathy is thought to be the direct catabolic effect of steroids on skeletal muscle.[2,3] It may occur with the commencement of steroid therapy or if the dose is suddenly increased in a patient already on a chronic maintenance dose. The presentation is subacute onset weakness in proximal muscles[4] over weeks with wasting but no myalgia or muscle tenderness. Lower extremity weakness significantly impacts activities of daily living. Risk of myopathy is considered to be more common with dexamethasone and triamcilone compared to prednisolone.[5–7]

Muscle enzymes and electromyography findings are normal in steroid myopathy and diagnosis is based on history and exclusion of other causes. Glucocorticoid dose reduction results in increased muscle strength within 3–4 weeks and weakness eventually resolves with discontinuation of steroid therapy.

Fatigue is common in cancer patients and affects quality of life.[8] The most important factors contributing to cancer related fatigue are treatment with cytotoxic chemotherapy, radiation therapy, anaemia, pain, emotional distress, sleep disturbance and poor nutrition. Patients should be screened[9,10] and management involves treating the reversible causes such as anaemia, metabolic and endocrine abnormalities, pain, insomnia, depression and anxiety. Other measures include education, counselling and low grade exercises. Pharmacological interventions include psychostimulants such as methylphenidate, modafinil, pemoline and dextroamphetamine.[11]

Radiotherapy to the brain can cause problems such as cognitive decline, headache and seizures. Neuronal loss, focal necrosis, tumour recurrence and encephalomalacia can occur at late stages of disease.

Summary

Patients are surviving longer with cancer due to early detection and improvements in treatment. While improvements in treatment add years to the life of the patients diagnosed with cancer, rehabilitation measures can address much of the impairment caused by the cancer.[12] The cancer pathology, patient age, anticipated disease progression and any associated treatment must be considered when deciding on appropriateness for rehabilitation. In appropriate situations, patients with cancer should be offered rehabilitation services if they are likely to benefit.

Rehabilitation services are easy to access in most teaching hospitals with oncology departments. There is a problem accessing rehabilitation services in rural and remote areas, however this can be addressed by way of teleconferencing.

Active engagement of oncologists, palliative medicine, general practitioners and rehabilitation specialists can be useful to assist in the rehabilitation needs of patients.

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