

## **STUDY DAY**

### **ACPOPC Southern Group Fatigue Study day**

#### **Introduction**

This study day was held at Forest Holme, Poole, Dorset on Wednesday 14<sup>th</sup> September 2005 and was sponsored by Orthobiotech. Speakers included: Caroline Belchamber, Senior 1 Oncology Physiotherapist, Helen Turnbull, clinical Oncology registrar, Dr Richard Osborne, Consultant Clinical Oncologist, and Caroline Shelton, complementary therapist. All speakers currently work at Poole hospital NHS Trust, Poole Dorset. Topics included: pathology of cancer; Fatigue: an overview; the effects of radiotherapy and chemotherapy on fatigue; relaxation techniques, a practical session involving hand massage. Our regional representative, Sarah Varman, shared southern regional news with us and local professional developments were discussed.

#### **Aims of the study day**

- To provide a general overview of the causes of fatigue in cancer patients
- To provide a clearer understanding of the treatment options available to manage fatigue

#### **Objectives of the study day**

- To have a clearer understanding of the aetiology and pathophysiology of cancer
- To understand the effects of cancer treatments on fatigue
- To be aware of the treatment options available to manage fatigue in cancer patients
- To understand more clearly the different roles that the multi-disciplinary team has in the management of fatigue in cancer patients

#### **Pathology of cancer**

The definition of cancer was discussed as well as its risk factors; environmental, hereditary (genetic); viral; age which all have a common link – mutations in Deoxyribonucleic acid (DNA).

A process known as carcinogenesis generates cancers. It is a multi-step mechanism resulting from accumulation of errors in vital regulatory pathways. The cell cycle is usually very carefully regulated and subject to internal and external regulatory signals. Changing proliferation, apoptosis or differentiation can alter growth. Oncogenes are normal regulatory genes whose activity are increased as a consequence of genetic alteration and can result in an altered product or increased production of a normal protein. Ras oncogene is commonly mutated in colon and pancreatic cancers. This oncogene product is permanently “on”. Tumour suppressor genes on the other hand code for inhibitory proteins whose function is lost in cancer. Inhibitory proteins that must be reversibly inactivated for growth to occur restrict normal cell growth and other functions. Mutations are usually repaired, especially before the cell can go through mitosis and there is evidence that cancer cells have defective DNA repair mechanisms. Hence some genetic illnesses with defective DNA repair mechanisms are more at risk

from cancer.

The differences between benign and malignant tumours were also discussed and it was noted that malignant tumours have the ability to invade and metastasise whereas benign tumours do not. Metastasis is the escape of cancer cells from a primary site and their re-establishment at distant secondary locations. Metastasis requires, disruption of local cell – cell interactions; invasion and penetration of blood or lymphatic vessels; escape from those vessels (extravasations); migration; growth. The routes of transport include body cavities or blood vessels (the anatomy of blood circulation partly determines the site of metastasis – first pass organ) and the lymphatic vessels (can reach the blood stream via the superior vena cava). Angiogenesis is important for establishment of primary tumours at their initial site but is also rate limiting and can therefore determine whether or not a metastasis remains dormant or grows to a size > 1mm.

## Summary

DNA mutations lead to uncontrolled cell proliferation with some cells having the potential to spread to other parts of the body- metastasis. Symptoms include; local invasion; disruption of an organ function; electrolyte imbalance; anaemia.

## The Effects of Radiotherapy and Chemotherapy on Fatigue

Fatigue in cancer patients is a complex multidimensional and challenging problem for both patients and the multidisciplinary team. It is compounded by the fact that currently there is no one accepted specific biological, physiological or psychological pathogenesis identified as the sole causative factor.

There are many factors, which can cause the symptoms of fatigue so a thorough assessment is key to the management of this patient group. Assessment should include a detailed history including fatigue pattern, contributing factors, sleep pattern, drug history, psychological profiling, activities of daily living and any other reversible factors.

Factors that cause fatigue are potentially reversible and their identification can influence the management of these patients. They include disease treatment, nutrition and psychological status. Cancer therapies (radiotherapy and chemotherapy) affect normal tissues as well as diseased tissue so the repair demand is greater, thus increasing the cellular energy demand. Those patients who are anaemic need monitoring for transfusions. Patients whose haemoglobin is 10 and above will have more energy. Certain patients are appropriate for EPO to manage this so they don't need transfusions. If a patient's nutrition is poor and they are not receiving sufficient nutrients then their energy requirements outweigh their intake, which can lead to muscle wasting and fatigue. If nutrition and haemoglobin are not addressed there is an increased workload on the lungs due to increased carbon dioxide, therefore decreased exercise tolerance and reduced energy levels. Dr Osborne encourages high calorie intake, optimising bowel function, and the use of anti-emetics to control vomiting. Psychological factors such as anxiety and depression further compound things with consistent prolonged anxiety and depression linked to long-term fatigue.

Physiotherapy can recondition patients, although deconditioning occurs quicker. Anxiety and depression need to be addressed before rehabilitation can take place. Patients need to be motivated and have ownership of their rehabilitation programme. This needs to be a continuous process adjusted to their disease progression. Rehabilitation programmes can increase exercise tolerance and raise endorphin levels thus enhancing mood. Improved outcomes in cancer patients who regularly exercise has been supported by a recent studies including Blanchard et al 2001 where anxiety was reduced through exercise and Porock et al 2000 study showed that exercise relieved fatigue and enhanced energy. However neither of these studies was able to isolate the mechanism (s) by which fatigue was relieved.

Complementary therapy

Patients in the Dorset Cancer Centre have access to a range of complementary therapy techniques including aromatherapy, reflexology and support classes. Complementary therapy can help relieve stress and anxiety, thus reducing symptoms of fatigue. Aromatherapy oils help the body recover from fatigue, rather than masking its effects. The therapists access patients on the wards and in day care commonly applying aromatherapy to hands and feet. Oils that are particularly effective include; bergamont, grapefruit, geranium, with rosemary especially recommended for mental fatigue.

## **Local Developments**

Closure of a local palliative care unit was discussed, which raised debate about the future job security in the palliative care setting. Is palliative care support seen as an additional extra and not essential in today's health care agenda?

Spinal Cord Compression was discussed at length and Poole Hospital are currently developing a pathway and physiotherapy protocol for the management of this patient group. Issues arising included spinal stability and the lack of consensus regarding timing of the mobilisation of patients.

A concern raised was the link between autonomic dysreflexia and spinal cord compression, should the same precautionary measures used with spinal cord injuries be transferred to this patient group?

Next meeting – Southampton General Hospital – Topic to be arranged.

## **Summary**

Fatigue is a complex multifactorial problem. Identification of the reversible and contributory factors can decrease the symptoms of fatigue. More research and increased Multi-disciplinary Team working in this complex area will enhance patients' quality of life.

## **Conclusion**

Twenty delegates attended the study day and the feedback was very positive. One hundred percent agreed that their knowledge of cancer, cancer treatment and their effect on fatigue had increased following the study day as well as their knowledge of fatigue management in cancer patients. Everyone thought that the practical session was a useful adjunct to the presentations. Overall the study day was rated as either excellent or good.

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