PERFORMING TALC PLEURODESIS IN PATIENTS WITH MESOTHELIOMA

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Mesothelioma is closely linked to exposure to asbestos and is extremely rare in its absence. Since the condition is latent for up to 40 years after exposure, it is possible that a surge in prevalence will be seen over the next two decades. Talc pleurodesis is used as a palliative treatment for controlling recurrent malignant pleural effusions, and nurses with suitable training and experience can carry out this procedure. This article describes the incidence and cause of mesothelioma, as well as the various management and treatment options. It also outlines suggested nursing practice guidelines for safe and efficient administration of talc pleurodesis.

The tumour in mesothelioma largely affects the thin pleural surface, and spreads over this area causing a malignant thickening of the pleura, which closely surround the lungs. From there, it is common for the tumour to spread into the mediastinum and across the diaphragm, from where it invades the chest wall and peritoneum.

More common in men, with an average age for presentation of 60, this malignancy is often well advanced before it is diagnosed because it causes few or no symptoms until it is well progressed. During the later stages of the disease, patients may complain of shortness of breath, pain in the chest, a persistent cough and hoarseness, unexplained weight loss and, as it progresses, difficulty in swallowing.

A chest X-ray will show pleural thickening, often accompanied by fluid in the pleural cavity and pleural calcification. A biopsy will confirm the diagnosis where it contains malignant cells. A CT scan may be helpful to determine the extent of the malignancy.

TREATMENT

This type of malignancy is resistant to the traditional treatments of chemotherapy and radiotherapy, although these can be used successfully for palliative symptom control. The prognosis following diagnosis usually means a survival time of six months to three years, with an average of around 18 months.

Treatment focuses on symptom control, through the management of pleural effusions, radiotherapy, chemotherapy and pain control.

PLEURODESIS

A key factor in mesothelioma treatment is early intervention in the form of pleurodesis (British Thoracic Society Standards of Care Committee, 2007). This prevents the pleural space from constantly refilling, which requires removal by invasive measures every time.

Pleurodesis can be performed by the introduction of sclerosing agents into the space between the visceral and parietal pleural layers, causing the mesothelial cells themselves to bring about a pleural fibrosis.

Perhaps the most common strategy in mesothelioma treatment is pleurodesis through the introduction of talc slurry. This is a mixture of sterile talc, sodium chloride and a local anaesthetic such as lidocaine 1%.

The mixture is introduced via a chest drain and is useful in patients who wish to avoid surgery where there would be an increased risk of complications. It is a relatively simple procedure and is successful in the treatment of recurrent effusions.

The procedure of talc pleurodesis can be performed by nurses as well as doctors. It is becoming common for trained nurses to carry out the procedure. It is suggested they have more than six months’ experience in respiratory care and follow evidence-based protocols (Munday et al, 2007).

The dose of talc should not exceed 4g and it should be size calibrated to avoid the rare risk of any further complications such as adult respiratory distress syndrome (ARDS), as there have been instances where small particle-sized talc has caused lung damage (Noppen, 2007). Larger-particle talc is much less likely to cause lung damage. This preparation is recommended for use within the EU, and there are fewer recorded complications as a result. Long-term follow-up of patients having undergone talc pleurodesis has shown positive results (Cardillo et al, 2002).

THE PROCEDURE

Preparing patients: Explain the procedure fully and offer reassurance. Position the patient comfortably in a sitting position with good access to the chest drain and the site;

Give analgesia: morphine sulphate 10–20mg or pethidine 50–100mg with an anti-emetic if required. Thereafter, continue with medication regularly as necessary;

Drain effusion: Any existing effusion should be completely drained before the procedure and confirmed by X-ray;

GIVE ANALGESIA: morphine sulphate 10–20mg or pethidine 50–100mg with an anti-emetic if required. Thereafter, continue with medication regularly as necessary;

Drain effusion: Any existing effusion should be completely drained before the procedure and confirmed by X-ray.

IMPLICATIONS FOR PRACTICE

- Given its rising incidence, it is vital nurses are aware of mesothelioma, its links to asbestos poisoning and treatment, and can advise patients and their families.
- A deeper understanding of this disease and its cause and progression will enable nurses to provide high-quality care.

The Department of Health’s (2007) Mesothelioma Framework outlines the specific care that should be offered to this group of patients.

With training, the administration of talc pleurodesis can be performed competently by nurses.
BACKGROUND

- Mesothelioma is a highly malignant tumour related almost entirely to exposure to asbestos. This substance was in common use in the shipbuilding, construction and demolition industries.
- Exposure to the irritant takes place, on average, 40 years before diagnosis of the malignancy.
- There were 1,834 newly diagnosed cases of mesothelioma registered in England in 2004 (DH, 2007).
- The British Lung Foundation (2008) has predicted the UK will face a surge in cases of mesothelioma, as a high number of people were exposed to asbestos in the 1950s–1970s.

Preparation of slurry: The dose of large-particle talc should not exceed 4g and is mixed into a smooth slurry with up to 40ml of sodium chloride 0.9% solution. Up to 30ml of 1% lidocaine can be added to the slurry. Following the procedure, the chest drain should be flushed with a further 20ml of sodium chloride to ensure the slurry has been introduced into the cavity and to ensure the tube remains patent.

Prepare the tube: Check the chest drain site to ensure correct positioning of the tube. Check the outer tube for excessive exudate and flush if necessary. Check for drainage levels (effusion should be completely drained);

Administration: Administer the preparation slowly and gently. Observe for excessive pain or breathlessness. Look for any leakage around the insertion site. Clamp the drain for between one and four hours, according to local protocol. After this time, the drain can be unclamped, but is left in until there is minimal drainage (less than 150ml in 24 hours);

Rotation: Patient rotation is possibly helpful to ensure good spread of the slurry and is recommended but not essential. If the patient is physically able, encourage movement from side to side every 15–20 minutes while the drain is clamped.


CARCINOGENICITY

- Mesothelioma is caused by inhalation of asbestos fibers, which become entangled in the mesothelial lining of the pleural cavity.
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Radiation Therapy

Radiotherapy for mesothelioma is palliative in nature and its main aim is to alleviate pain and discomfort by reducing the size of the tumour area. Patients should be given the opportunity to discuss the role and implications of radiotherapy, along with possible side-effects and complications. Radiotherapy is said to reduce the size of the tumour and the pain associated with mesothelioma in approximately half of patients (Department of Health, 2007).

Chemotherapy

All patients with mesothelioma should be given the opportunity to discuss the merits of chemotherapy with a qualified healthcare practitioner such as a respiratory consultant or a clinical nurse specialist (DH, 2007). There is no evidence that chemotherapy is a cure for mesothelioma. However, it can be used as a palliative measure to shrink the size of the affected tissue, thus reducing symptoms (British Lung Foundation, 2008).

Supportive Care

Clinical nurse specialists (CNSs) have a pivotal role in treating and supporting patients and their families. Their role includes liaising with other practitioners in the multidisciplinary setting, such as specialist palliative care workers, doctors, dietitians, physiotherapists and the community palliative care support team.

Lung cancer specialist nurses support patients and families through diagnosis, discussion of treatments and palliative symptom control, as well as at spiritual and psychological milestones. They liaise between the various healthcare agencies and ensure lines of communication are kept open between patients, their families and members of the multidisciplinary team.

References


