Avoiding Hospital Admission to Drain Pleural Effusions

This is a summary: the full paper can be accessed at nursingtimes.net

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This article describes the implementation of an initiative to allow patients with malignant pleural effusions to manage their condition in the community. The scheme has allowed them to avoid hospital admissions for the procedure and has resulted in cost savings and reduced bed occupation. It has also improved patients’ quality of life and established joint working between primary and acute care.

**INTRODUCTION**

This article discusses the treatment of patients with malignant pleural effusions (PEs), which are a significant cause of morbidity and a poor prognostic indicator (Pollak, 2002). Most are caused by cancers of the breast, lung, gastrointestinal tract or ovary or by lymphomas (National Cancer Institute, 1998).

**MANAGEMENT AND TREATMENT**

Malignant PEs should be managed by identifying and treating the cause according to British Thoracic Society guidelines (Antunes et al, 2003; Maskell et al, 2003). Treatment options include thoracoscopy, long-term indwelling catheter and pleuroperitoneal shunt, and are determined by several factors:

- Symptoms and performance;
- Status of the patient;
- The primary tumour and its response to systemic therapy;
- Lung re-expansion following pleural fluid evacuation (Antunes et al, 2003).

Some patients experience recurrent malignant PEs, and may be treated by pleurodesis. This is the artificial obliteration of the pleural space and can be achieved by introducing chemicals such as tetracycline, bleomycin, povidone-iodine or a slurry of t alc into the pleural space through a chest drain. The chemicals cause irritation between the parietal and visceral layers of the pleura, which closes off the space between them and prevents further fluid accumulation.

Traditionally, management of patients with recurrent PEs has consisted of repeated and often extended hospital admissions. This is stressful and inconvenient for patients and carers and costly to the NHS. With the advent of new technologies, we identified patients with recurrent malignant PEs as a group that could benefit significantly from new management techniques.

In patients with recurrent exudative PEs for whom talc pleurodesis has failed on two attempts, at West Essex PCT we have been using a long-term indwelling catheter to drain the effusions in patients’ own homes.

**THE PROJECT**

Within West Essex PCT’s catchment area when this programme was set up, an average of 12 patients a year required repeat admissions to acute wards owing to recurrent PEs, usually for three days or longer. The number of admissions for each patient depended on diagnosis, symptoms and bed availability.

The PCT addressed this by commissioning a service to manage these patients in the community, allowing them to receive treatment in their own homes. The service, launched in April 2006, uses a combination of acute and primary care involving the community-based respiratory nurse and the consultant chest physician at the hospital.

A Pleurx indwelling catheter is inserted in hospital under local anaesthetic, which is performed as a day-case procedure. This normally remains in situ throughout patients’ palliative state, although this depends on the individual diagnosis and prognosis. In my experience, the catheters remain in situ until the patient’s death, unless pleurodesis is achieved, in which case it is removed.

The catheter is soft and flexible and well tolerated by patients. It has a two-way safety valve to prevent the inadvertent passage of air/ fluid through the catheter. A polyester cuff promotes tissue ingrowth to reduce infection risk and holds the catheter securely in place once the sutures are removed. The catheter also has a fenestrated length of 24 cm, while large, smooth and bevelled edges promote drainage and avoid plugging.

The Pleurx device is tunnelled to reduce infection and sutured in place. It is a closed system, which reduces the risk of infection. The Pleurx mini kit consists of a 500ml or 1,000ml plastic vacuum bottle with drainage line. It is highly portable and comes complete with a gauze pad, foam catheter pad, alcohol pads, gloves, blue emergency slide clamp, self-adhesive dressing and valve cap, so no extra equipment is needed. This enables practitioners or patients to manage PEs in a home setting. Although the...
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BACKGROUND

A pleural effusion (PE) is defined as excessive fluid between the visceral and parietal pleura. A healthy person normally has 15–20ml of fluid present; any significant increase is known as a pleural effusion. The condition compresses the lung and is usually visible on X-ray.

Symptoms of PE include dyspnoea, a persistent cough, chest pain and tightness. These can be distressing and frightening for both patients and carers.

PEs can become large enough to cause hypoxia, mediastinal shift and respiratory failure.

There are two types of PE: transudative PEs, often caused by abnormal lung pressure; and exudative PEs, the result of inflammation of the pleura.

drainage procedure is safe for patients to carry out at home, for the trial it was carried out by trained nursing staff. Since then, some patients have undertaken the task for themselves but most are done by the primary care nursing team.

The cap on the catheter is removed and the valve cleaned with an alcohol wipe, then the vacuum bottle drainage line is attached to the catheter to drain fluid. Up to 1L can be drained at each procedure, though typically it is an average of around 400ml.

EFFECTIVENESS OF TUNNELLED CATHETER PLACEMENT

The indwelling catheter system has been widely and successfully used in the US. In a study of 250 patients, Tremblay and Michaud (2006) concluded that tunnelled pleural catheter placement is an effective means of palliation for malignant PE that allows outpatient management and low complication rates. They advocated that the insertion of a tunnelled pleural catheter should be considered as a first-line treatment option in management of patients with malignant PEs.

Complications tend to be rare, minor and easily managed. The most common is pain during drainage, which is easily managed by administering analgesia before commencing drainage and by regulating the flow of drainage. Staff and patients were taught to manage complications through practical teaching and observation, backed up by training videos provided by the manufacturer.

All patients were willing to take part in the programme and were confident about the intervention because of the clear benefits to their quality of life and symptom control and management.

OUTCOMES TO DATE

Six patients were recruited initially, with a range of diagnoses causing recurrent PEs.

Comparison of the number of admissions required by these patients while being treated at home with the number needed previously, suggests a total of 161 potential admissions were avoided. Of these, it is likely that 71 would have been without and 90 would have been with complications. We calculated the costs these admissions would have entailed, based on the payment-by-results tariff for 2007–2008 (for details see nursingtimes.net).

Bearing in mind that the number, length and nature of admissions can only be assumed based on information from previous admissions, it is not possible to calculate exactly how much the initiative has saved the PCT. However, the 161 avoided admissions would cost between £89,705 if all were short stay and £448,615 if all were longer stay. Of course, the real figure would be somewhere between the two figures. Excluding staffing, the initiative cost around £9,000 for the Pleurx drainage kits.

BENEFITS OF THE SCHEME

A case study on nursingtimes.net describes the most successful intervention that this programme offered, and one patient was able to have the catheter removed after achieving pleurodesis.

A PCT merger has taken place and the programme has now been extended to the neighbouring localities.

Patient management is predominantly based in primary care but with access to acute care for further management and advice should there be any significant changes in the fluid consistency, colour, viscosity or amounts. This has further reduced the need for outpatient reviews, which is not only beneficial to patients but also allows more capacity to be provided in outpatient services.

Pleural drainage with this scheme is efficient and effective to meet the needs of patients, the service and the NHS. The service is also very easy to adopt.

An additional pleural lavage procedure has proven effective in reducing the viscosity of pleural fluid. Although we have only needed to use this for one patient, it has, in combination with the Pleurx drainage, reduced infection and readmission rates and extended the patient’s life expectancy.

REFERENCES


