PNEUMONIA 2: EFFECTIVE NURSING ASSESSMENT AND MANAGEMENT

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ASSESSMENT
As discussed in part 1 of this unit, patients suffering from pneumonia may present in a variety of ways, ranging from the asymptomatic to the seriously symptomatic. It is important that practitioners are able to assess the severity of the pneumonia and its impact on patients’ physical condition.

The CURB-65 score is the most commonly used tool to identify patients who are sick or have the potential to become very unwell, possibly requiring admission to ICU (Kamath et al, 2006). It allocates a point for an abnormal finding in each of four main areas – mental state, blood urea levels, respiratory rate and blood pressure, and gives a score for age. It is summarised as follows:

- **C** = New mental confusion
- **U** = Urea >7mmol/l
- **R** = Respiratory rate ≥30bpm
- **B** = Blood pressure (systolic <90mmHg, diastolic ≤60mmHg)
- **A** = Age ≥65

(Buising et al, 2006; Espana et al, 2006).

For patients scoring 2 or less, hospital admission may not be necessary but this will depend on any pre-existing illness that may exacerbate the problem. Those scoring more than 2 require admission for further assessment and management. The higher the score, the more severe and potentially life-threatening the case may be. The CURB-65 score, while effective, is only one type of assessment tool in current practice.

LEARNING OBJECTIVES
1. Identify the severity of the pneumonia by using an appropriate scoring tool.
2. Identify key areas for nursing intervention in patient care.

Its effectiveness can be further enhanced if used in conjunction with an early assessment tool such as MEWS (Modified Early Warning Score). This cumulative score is based on blood pressure, respiratory rate, consciousness level, urine output, temperature and pulse.

In addition to ensuring all observations are carried out, the use of such tools also helps to identify potential and actual deterioration in patients and facilitate intervention and referral to ICU at an early stage. If they are used in conjunction with haematological and biochemical parameters, early organ failure can be identified, including those patients with multi-organ failure who meet the criteria for admission to ICU.

Using tools such as CURB-65 and MEWS should enable practitioners to appropriately identify the severity of the pneumonia, initiate early and appropriate treatment and involve other members of the healthcare team. The ordering and interpretation of the appropriate tests and investigations can further aid assessment.

Chest X-ray will allow the identification of any underlying lung disease that may exacerbate the problem. It can also be used to assess the response to treatment, while experienced practitioners may be able to identify lobar involvement and possible causative organisms. The X-ray may also identify the degree of consolidation or pleural effusions.

Diagnosis of pneumonia in hospitalised patients may be difficult, however, as many will have similar symptoms and abnormal chest X-ray results. For these patients, other diagnostic tests are required.

TESTS AND SAMPLES
Sputum samples can aid in the specific diagnosis but may be difficult for some patients to produce – especially those who have consolidation and are dehydrated. Promoting good fluid intake through the use of intravenous fluids will help promote release of secretions; humidified oxygen therapy could also be helpful.

Physiotherapy may also help to achieve sputum samples and promote recovery. Samples should be sent for culture and sensitivity, and urine obtained for pneumococcal antigen and acid-fast bacilli (AFB). Before the sample is sent it should be inspected for the presence of blood, colour and consistency. Findings – both normal and abnormal – should be documented in patients’ charts, with abnormal findings receiving further follow-up as required.

Full blood count (FBC) should be obtained to allow identification of the white blood cell count (WBC), which will be raised in the presence of infection. A low WBC may also indicate the inability to fight infection, and indicate the need for more aggressive interventions. It is also essential to identify the urea level to facilitate the use of CURB-65. Blood culture may also be indicated to isolate a potential causative organism.

Urine analysis can also be helpful in the diagnosis of a possible causative organism. The presence of glucose, protein and blood is often found initially in cases of pneumonia. Urine should be obtained and sent for Legionella and pneumococcal antigen.

Arterial blood gas (ABG) samples will identify acidosis and hypoxia requiring intervention and referral for anaesthetic or respiratory review and oxygen therapy. The concentration of inspired oxygen should be taken into account when interpreting ABGs, especially the oxygen level.

TREATMENT
Oxygen therapy is an essential component of treatment for all patients with pneumonia (Royal College of Surgeons, 2004). Its aim is to maintain their saturations above 93%.
Oxygen therapy may vary from low concentrations to high flow via a trauma/non-rebreather mask. Consideration should be given to the use of humidified oxygen therapy to help facilitate easier expectoration. Physiotherapy is often beneficial to help teach patients how to breathe properly, control their breathing and optimise their posture to promote good lung expansion and expectoration.

While pulse oximetry has a role to play in monitoring patients with pneumonia, it can be inaccurate and arterial blood gas analysis should be carried out to ensure sufficient oxygenation is being achieved (Turner, 2003). For those patients who are persistently hypoxic despite receiving high flow oxygen, the use of continuous positive airway pressure (CPAP) is advocated as a viable treatment option (BTS, 2004). For this patients may need to be transferred to a high-dependency area, and local protocols would need to be followed.

Any signs of dehydration and hypotension should be addressed where possible. Intravenous (IV) access should be obtained and IV fluids should be administered in order to rehydrate the patient. Good hydration makes it easier for patients to expectorate secretions.

Nutrition should also be considered. Many patients with severe pneumonia will experience nausea and therefore have a poor appetite. However, their calorific requirement is raised due to the presence of infection. Early advice from the dietetics department should be sought to ensure the patient’s calorie intake is adequate to enable the body to fight the infection.

Antibiotic therapy should be commenced as soon as possible. Ideally, sensitivity of the causative organism should be ascertained beforehand but this is not always practical and may delay treatment. Therapy should be started immediately and then tailored to the specific causative organisms when they have been identified. Intravenous antibiotics are required for patients with severe pneumonia but these can be changed to oral preparations when the patient’s condition improves. Most clinical areas will have designated local treatment plans on antibiotic therapy and these should be followed to help reduce the risk of resistance developing. This is particularly important in hospital-acquired cases of pneumonia.

Analgesia is an important aspect of treatment for pneumonia (Ramakha and Moore, 1999). Many patients experience pleuritic-type chest pain and if this is not controlled properly, it may inhibit full lung expansion during inspiration and further exacerbate their condition. Patients who are developing respiratory failure may need to receive some form of ventilatory support. Non-invasive ventilation may provide enough support for those whose condition is not severe enough to merit admission to ICU. Again, the emphasis is placed on early involvement of anaesthetic staff to help facilitate smooth transfer to ICU where full ventilation is required. Clear protocols or guidelines should be in place to facilitate the early referral of these patients, such as the use of early warning scoring or hospital emergency care teams (Watson, 2006).

CONCLUSION
Assessment is extremely important in treating patients with pneumonia. This should extend beyond the respiratory system, as the disease may have an impact on other bodily systems and functions. Accurate history-taking may facilitate the early identification of potential causative organisms, while supportive therapy such as IV fluids, analgesia and antibiotic therapy should be commenced as soon as possible.

The severity of the infection should be assessed, and practitioners should familiarise themselves with CURB-65, MEWS, or an appropriate alternative assessment tool used in their clinical area (Buising et al, 2006; BTS, 2006). An early warning score will help ensure that any deterioration in the patient’s condition will be detected early, facilitating early intervention and intensive care involvement if necessary. Communication with the multidisciplinary team will facilitate early physiotherapy and anaesthetic review. For those patients in whom diagnosis is difficult, early advice from a respiratory physician should be sought.

Increased awareness of pneumonia and its potential severity and impact is needed in general ward areas to prevent patients who have the condition receiving delayed or inappropriate care. Vigilance in observations and basic nursing care will help nurses to identify possible cases of pneumonia, and facilitate early intervention and better quality of care for patients.

KEY REFERENCES


The full reference list for this part of the unit is available in Portfolio Pages at nursingtimes.net