end of life so they need to understand the potential outcomes and give consent. If intubation and mechanical ventilation is considered, involving intensive care doctors at an early stage is recommended.

**Optimising medical treatment**

It is essential to optimise medical treatment, such as bronchodilators and steroids (for managing COPD), and carry out blood tests, including blood gases, and chest X-rays before considering NIV. Other treatments may be needed, such as antibiotics to treat infection or diuretics for pulmonary oedema.

Oxygen must be titrated to maintain a target saturation (SpO₂) of 88-92%. This ensures adequate hypoxaemia treatment while minimising the risk of high oxygen concentrations increasing hypercapnia and worsening acidosis. Reducing oxygen concentrations to achieve this target is likely to improve acidosis and may exclude the need for NIV (BTS Emergency Oxygen Guidelines Group, 2008).

Patients presenting with a critical illness should be treated with high concentrations of oxygen until stable and re-evaluated at the earliest opportunity. Repeat blood gas should demonstrate a respiratory acidosis before proceeding with NIV.

**CONTRAINDICATIONS TO NIV**

There are no absolute contraindications to NIV (Elliot, 2005) although guidelines do suggest very careful consideration with certain groups. Cautions associated with NIV are listed in Box 3.

**SELECTING EQUIPMENT**

There are numerous ventilators available to deliver NIV but selecting one model for use across a hospital simplifies training, makes it easier for staff and reduces the risk of errors as staff are familiar with equipment.

It is important to have a selection of masks as an appropriate and well-fitting mask is essential for effective treatment. Styles of mask include: full face, covering nose and mouth; nasal, covering the nose (Fig 1); and total face, covering nose, mouth and eyes (Fig 2).

A poor-fitting mask leaks, compromising ventilation and patient comfort, and can result in skin damage. Most patients will start with a full face or total face mask as many are mouth breathers. Those using a nasal mask must have a patent nasal airway and no nasal congestion. They must also be able to keep their mouth closed or tolerate using a chin strap to minimise leaks.

**PATIENT MONITORING**

Nurses must monitor patients’ respiratory rate, level of consciousness, chest movement and accessory muscle use and comfort every 15 minutes after NIV starts; this frequency can be reduced as their condition improves.

Pulse oximetry and electrocardiogram monitoring should be continuous for the first 12 hours. Blood gases must be taken one hour after starting NIV, after setting changes and then every 4-6 hours once patients are stable. It is important to monitor for leaks around the mask and that patients’ breathing and the ventilator are synchronous.

**DISCONTINUING NIV**

NIV should be continuous for the first 24 hours with short breaks to eat, drink, attend to hygiene needs or receive other treatments. It is helpful to discontinue NIV during the day as patients are more vulnerable to deterioration at night. Sometimes weaning may take a number of days. A small number of patients who are repeatedly admitted for AHRF may need to be assessed for home NIV (BTS Standards of Care Committee, 2002).

**CONCLUSION**

Nurses on acute wards have an important role in providing acute NIV for the treatment of AHRF. Setting up a well-run service with good support structures, local protocols, audit and training on the essential components is crucial. Adequate resources are important but there is no method to calculate minimum staffing levels required.

**REFERENCES**


