

Scottish Thoracic Society

Position Statement: CPAP for COVID-19 -related Respiratory Failure

Outline

Continuous positive airway pressure (CPAP) treatment delivered via face mask and simple device is widely used for home management of obstructive sleep apnoea syndrome.

Evolving European and UK experience notes benefit from CPAP treatment for carefully selected COVID-19 pneumonia patients, as part of bridging, deferral, weaning and possibly ceiling of care breathing support strategies. This is rapidly evolving and further information will emerge.

General considerations for provision of acute CPAP treatment are similar to those for acute non-invasive ventilation, which is widely used for periods of hours-few days in acute wards, respiratory wards and high-dependency units. There are important COVID-19 specific considerations including PPE, monitoring of patients for deterioration and timely escalation and feasibility of safe and quality provision of CPAP for COVID-19 pneumonia with all required ancillary care for extended treatment periods.

Background information

A proportion of patients with COVID-19 pneumonia-ARDS have CPAP-responsive hypoxaemia. Other institutions and territories have produced position statements endorsing CPAP treatment in COVID-19 pneumonia.

NHS Scotland national procurement team have moved rapidly to obtain suitable equipment for CPAP provision at national scale during COVID-19 surge.

Extensive benchmarking work has been done to define optimum device and circuit setup and determine what CPAP/FiO₂ therapy can be obtained with the range of equipment available in NHS Scotland.

Comments

Providing CPAP treatment for COVID-19 pneumonia safely will require close collaboration between respiratory and ICU teams at all NHS Scotland acute sites, to determine capacity including staffing, training, location of care and treatment escalation plans.

Additional considerations for CPAP COVID-19 management include fluid management, enteral nutrition, thromboprophylaxis and vigilance for thrombotic complications, prone positioning, pressure care, bowel management, symptom control strategy and risk of delayed recognition of deterioration / development of patient-induced lung injury with high minute ventilations on CPAP.

CPAP is regarded as an AGP, and Health Protection Scotland and local infection control team advice on appropriate PPE and safe location to provide this treatment is recommended.

Recommendations

Facilities and staffing model to provide CPAP therapy in high dependency or hi-care ward settings across NHS-S should be explored, to enhance and expand critical care and respiratory medicine COVID-19 surge response capability.

Session respiratory PPE (gloves, gown, FFP/N95 mask, visor) is currently recommended by Health Protection Scotland for use in ward areas where CPAP/NIV is being undertaken. These PPE recommendations may evolve, and local implementation advice is required.

Oxygen provision capacity across and within hospital sites is an important consideration. CPAP therapy for COVID-19 respiratory failure achieves FiO₂ of 50-60% with pressure of 10-15cmH₂O and 10-15L / minute entrained oxygen flow. Non-rebreather mask also requires 10-15L / minute, so CPAP therapy will usually be "oxygen neutral".

Site-specific SOP for CPAP for COVID-19 pneumonia is recommended.

Most important consideration for device, mask and circuit choice for CPAP provision is local team familiarity with the equipment. Droplet spread risk is reduced by use of non-vented mask-circuits where use of these is familiar and available.

Local appraisal of all of these factors will determine site-specific capacity for CPAP provision, and also the clinical scenarios (bridging or deferral of intubation, weaning, ceiling of care) for which CPAP can be safely provided.

Nationally procured equipment for CPAP will be distributed based on availability, local capacity and caseload.