Inspiring Change

A review of the quality of care provided to patients receiving acute non-invasive ventilation

Summary

The provision of effective care to patients with acute non-invasive ventilation is more complex than it first seems.

This study has shown that major improvements are required. The care of these patients was rated as less than good in four out of five cases. The mortality rate was high; more than one in three patients died.

Despite guidelines that recommend staffing levels and arrangements for monitoring patients treated with NIV, there was wide variation in how services were organised. Supervision of care and patient monitoring were commonly inadequate.

Case selection for NIV was often inappropriate, and treatment was frequently delayed due to a combination of service organisation and a failure to recognise that NIV was needed. The quality of medical care provided was often poor. This poor care included both non-ventilator treatments and ventilator management which were frequently inappropriate.

This study has also revealed the complexity involved in assessing an individual patient's response to NIV. This involves detailed vital signs monitoring, and blood gas analysis alongside an understanding of the effect of changes in ventilator settings and the overall goals of treatment.

All aspects of this assessment were frequently poorly done or omitted entirely.

Both the reviewers who assessed the cases and the clinicians who looked after the patients in their own hospitals identified the same areas for improvement in care. Organisations regularly reported clinical incidents related to patients receiving NIV. Despite this they frequently did not audit their own practice.

In order to improve the outcome from NIV, organisations must act to ensure services are well designed, local leadership is in place and competent staff are available to deliver care. For clinicians, the importance of case selection, regular patient assessment, specialist involvement and the clinical factors that influence outcome needs to be emphasised.

NCEPOD www.ncepod.org.uk @ncepod #acuteNIV

Principal recommendations

All hospitals should have a clinical lead for their acute non-invasive ventilation (NIV) service. The clinical lead should have time allocated in their job plan with clear objectives, including audit and governance for this service. *(Medical Directors and Nursing Directors)*

Treatment with acute non-invasive ventilation (NIV) must be started within a maximum of one hour of the blood gas measurement that identified the need for it, regardless of the patient's location. A service model whereby the NIV machine is taken to the patient to start treatment prior to transfer for ongoing ventilation will improve access to acute NIV. *(All Clinical Staff Providing Acute Non-Invasive Ventilation and Acute Non-Invasive Ventilation Service Leads)*

All hospitals where acute non-invasive ventilation (NIV) is provided must have an operational policy that includes, but is not limited to:

a. Appropriate clinical areas where acute NIV can be provided, and in those areas the minimum safe level of staff competencies;
b. Staff to acute NIV patient ratios;
c. Escalation of treatment and step down care procedures;
d. Standardised documentation; and
e. Minimum frequency of clinical review, and seniority of reviewing clinician

Compliance with this policy should be part of the annual audit process. *(Medical Directors, Nursing Directors and Acute Non-Invasive Ventilation Service Leads)*
**See Appendix 1 – British Thoracic Society competency checklist*
www.brit-thoracic.org.uk/ standards-of-care/guidelines btsrcpics-guideline-for-non- invasive-ventilation/

All patients treated with acute non-invasive ventilation (NIV) must have a treatment escalation plan in place prior to starting treatment. This should be considered part of the prescription for acute NIV and include plans in relation to:

a. Escalation to critical care;
b. Appropriateness of invasive ventilation; and
c. Ceilings of treatment.

This should take into account:

d. The underlying diagnosis;
e. The risk of acute NIV failure; and
f. The overall management plan.

(All Clinical Staff Responsible for Starting Acute NIV)
**See Appendix 1 – British Thoracic Society NIV prescription chart*
www.brit-thoracic.org.uk/ standards-of-care/guidelines/btsrcpics-guideline-for-non- invasive-ventilation/

All patients treated with acute non-invasive ventilation (NIV) must be discussed with a specialist competent in the management of acute NIV at the time treatment is started or at the earliest opportunity afterwards. Consultant specialist review to plan ongoing treatment should take place within a maximum of 14 hours. *(Acute Non-Invasive Ventilation Service Leads)*

All patients treated with acute non-invasive ventilation must have their vital signs recorded at least hourly until the respiratory acidosis has resolved. A standardised approach such as the National Early Warning Score is recommended. *(Nurses and Acute Non-Invasive Ventilation Service Leads)*
**See Appendix 4 – National Early Warning Score (NEWS)*
www.rcplondon.ac.uk/projects/outputs/national-early-warning-score-news

All hospitals should monitor their acute non-invasive ventilation mortality rate and quality of acute NIV care. This should be reported at Board level. *(Chief Executives, Medical Directors, Nurse Directors and Acute Non-Invasive Ventilation Service Leads)*