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**Noninvasive positive pressure ventilation for acute respiratory failure following oesophagectomy; is it safe? A systematic review of the literature**

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**Running title;** Noninvasive ventilation following oesophagectomy in intensive care.

**Abstract**

*Objective*;To find, critically appraise and synthesise all published studies so as to determine the safety and spectrum of use of noninvasive positive pressure ventilation (NPPV) for acute respiratory failure (ARF) following esophagectomy.

*Design*;Systematic review.

*Methods*;The MEDLINE and EMBASE databases were searched and the quality of the studies and any bias or confounding were rated according to established protocols. Outcomes extracted included re-intubation, anastomotic leakage, length of ICU stay and mortality. The data was analysed quantitatively and qualitatively. Pooling of outcomes was considered if appropriate.

*Results*; The search identified four papers, demonstrating the understudying/underreporting of the topic. Three were case-series and one was a conference abstract. The overall methodological quality was low. Design specific biases and confounding was high. Despite this, the included studies conclude that NPPV is safe and effective and that re-intubation, ICU length of stay, mortality and anastomotic dehiscence is lower when it is used. Meta-analysis was deemed to be inappropriate.

*Conclusions*; Despite the conclusions and consensus of the included studies, there is no evidence to definitively conclude that NPPV is safe or dangerous following oesophagectomy and the current literary evidence is inadequate. Current practice varies and is based on opinion and consensus. As such, randomised controlled studies are urgently required as current practice may cause undue harm to patients. The incidence of anastomotic leakage with NPPV use needs to be determined.

**Keywords**

Oesophagectomy, Noninvasive positive pressure ventilation, anastomosis.