The optimisation of noninvasive ventilation in amyotrophic lateral sclerosis: a systematic review

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This systematic review identifies factors associated with the optimal initiation and ongoing monitoring of NIV in patients with ALS. It is recommended to optimise the use of NIV in ALS to improve patient outcomes. http://bit.ly/2L2usJS


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**ABSTRACT**

**Background:** Noninvasive ventilation (NIV) prolongs survival and quality of life in amyotrophic lateral sclerosis (ALS); however, its benefits depend upon the optimisation of both ventilation and adherence. We aimed to identify factors associated with effective initiation and ongoing use of NIV in ALS to develop evidence-based guidance and identify areas for further research.

**Methods:** We searched 11 electronic databases (January 1998 to May 2018) for all types of quantitative and qualitative studies. Supplementary grey literature searches were conducted. Records were screened against eligibility criteria, data were extracted from included studies and risk of bias was assessed. We present findings using a narrative synthesis.

**Results:** We screened 2430 unique records and included 52 quantitative and six qualitative papers. Factors reported to be associated with NIV optimisation included coordinated multidisciplinary care, place of initiation, selection of interfaces, ventilator modes and settings appropriate for the individual patient, and adequate secretion management. The literature indicated that patients with significant bulbar dysfunction can still derive considerable benefit from NIV if their needs are met. Research emphasises that obstructive airway events, mask leak and uncontrolled secretions should be addressed by adjustments to the interface and machine settings, and the concomitant use of cough augmentation.

**Conclusion:** This review highlights that NIV optimisation requires an individualised approach to respiratory management tailored to the differing needs of each patient. Ultimately, this should lead to improved survival and quality of life. This review expands on recommendations in current international guidelines for NIV use in ALS and identifies areas for future research.

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