Eur Neurol 2009;61:319
DOI: [10.1159/000206826](https://doi.org/10.1159/000206826)

Pulmonary Function Variables as Predictors of Survival in Patients with Amyotrophic Lateral Sclerosis

G. Cheng, J.R. Bach

UMDNJ, New Jersey Medical School, University Hospital B261,
Newark, N.J., USA

Dear Sir,

The article by Peysson et al. [1] in *European Neurology* provided insight into the factors predicting survival of patients with amyotrophic lateral sclerosis (ALS) treated with noninvasive ventilation (NIV). The authors reported that advanced age at diagnosis and airway mucus accumulation as evidenced by increased need for mechanically assisted coughing predicted poor prognosis in patients with ALS treated with NIV. However, the authors did not explain how NIV was used when patients required continuous ventilatory support or even if they used NIV for patients who required it continuously. Peysson et al. [1] also reported that respiratory parameters or presence of bulbar symptoms had no effect on survival from initiation of NIV, but they did not quantify bulbar-innervated muscle function nor did they distinguish the most important bulbar-innervated muscles, that is, the glottis, from less important ones. Bach [2] demonstrated prolongation of survival using NIV in patients with ALS. Patients whose glottides were sufficiently functional to produce cough peak flows in excess of 3 liters/s or who could hold insufflations (maximum insuf-

flation capacity, MIC) deeper than their vital capacities (VC) could use continuous NIV essentially indefinitely. On the other hand, patients whose $MIC - VC = 0$ could not close their glottis and had poor survival prognosis. Thus, the presence of bulbar involvement as objectively determined is directly related to tracheostomy-free prolongation of life. Peysson et al. [1] noted that studies are conflicting regarding whether patients with bulbar-onset ALS are able to tolerate NIV as well as patients with limb-onset ALS. However, the question is irrelevant since it is the extent of bulbar function at any time that determines the potential to use NIV (up to continuously as needed) successfully.

Peysson et al. [1] also reported that the choice of barometric or volumetric NIV used in the study was based on the experience of physicians and on the tolerance of patients. However, pressure modes do not permit air stacking to the deep insufflations required for effective coughing. Thus, patients with bulbar function ($MIC - VC > 0$ ml) would be better advised to use volumetric modes [3].

References

- 1 Peysson S, Vandenberghe N, Philit F, et al: Factors predicting survival following noninvasive ventilation in amyotrophic lateral sclerosis. *Eur Neurol* 2008;59:164–171.
- 2 Bach JR: Amyotrophic lateral sclerosis: predictors for prolongation of life by noninvasive respiratory aids. *Arch Phys Med Rehabil* 1995;76:828–832.
- 3 Kang SW, Bach JR: Maximum insufflation capacity. *Chest* 2000;118:61–65.

Glen Cheng
UMDNJ, New Jersey Medical School, University Hospital B261
150 Bergen Street
Newark, NJ 07101 (USA)
Tel. +1 973 972 7195, Fax +1 973 972 5725, E-Mail chenggl@umdnj.edu