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Sniff Nasal Pressure Is a Sensitive Marker of Poor Outcome in Amyotrophic Lateral Sclerosis

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We read with great interest the article of Bauer et al. [1] entitled: 'Limitations of sniff nasal pressure as an outcome measurement in amyotrophic lateral sclerosis patients in a clinical trial'. In the article, the authors showed that sniff nasal inspiratory pressure (SNIP) in sitting measuring respiratory function declined significantly less compared to the Amyotrophic Lateral Sclerosis (ALS) Functional Rating Scale – Revised ($p < 0.05$) and forced vital capacity (FVC; $p < 0.001$) up to 4 months after enrollment in 20 patients with ALS.

These results are interesting; however, in the study of Morgan et al. [2], as well as in our experience [3], the sniff nasal-inspiratory force test was a better marker of respiratory muscle strength in ALS compared to FVC. In addition, it could be performed by patients with advanced disease, and it gave good prognostic information [2]. Furthermore, the SNIP test, compared to FVC, was shown to be a marker of sleep disordered breathing in ALS [3]. Indeed, a linear correlation between a lower SNIP value and reduced nocturnal SaO_2 in patients with a SNIP value of less than 60 cm H_2O

($p = 0.04$) was found. A negative correlation between SNIP and time spent in SaO_2 below 90% ($p = 0.0054$), and between SNIP and oxyhemoglobin desaturation index (events/hour; $p = 0.0368$) was also established in ALS patients, while FVC did not correlate with any nocturnal parameters observed [3].

The results of these previous studies highlighted the limitations of using FVC in ALS when compared to the sniff test. First, FVC cannot be obtained in about 20% of the subjects at the later stages of the disease, and second, it is not sensitive to important changes in respiratory muscle strength because 75% of the subjects with important levels of muscle weakness (SNIP < 40 cm H_2O) still had an FVC greater than 50% [2].

In summary, the sniff test (SNIP) is a valuable tool to monitor respiratory muscle strength, and it is able to evaluate sleep disordered breathing related to respiratory insufficiency early in patients with ALS.

References

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