Title: The prognostic role of OSA at the onset of amyotrophic lateral sclerosis

Body: Background and aims: Amyotrophic Lateral Sclerosis (ALS) is a neurodegenerative disease characterized by progressive loss of central motorneurons, and peripheral motor neurons. Some studies have disclosed discordance between the presence of sleep apnea in ALS. An obstructive component also occurs with upper airways hypotonia and muscle weakness that may result in excessive reduction of airway lumen leading to obstructive sleep apneas (OSA). The aim of this study was to assess the role of obstructive apneic events at disease onset in the ALS prognosis. Methods: a longitudinal retrospective study was conducted on 42 clinically diagnosed ALS patients. Population of patients was divided into two groups according to AHI-obstructive (AHIo) index: 20 patients with AHIo ≥ 5 included group 1, and 22 patients with AHIo < 5 were enrolled in group 2. Both groups were compared with regard to: demographic characteristics, polygraphic parameters, respiratory function tests, ALS characteristics, including time from the onset of symptoms, to first ambulatorial control (time of disease). Results: sniff nasal inspiratory pressure (SNIP) was significantly correlated to AHI (p<0.05), TST90 (p<0.05), and ODI (p<0.05). Mean survival in ALS patients with AHIo ≥ 5 was significantly lower than in ALS without OSA (18.63 vs 31.43 months, p<0.05). Conclusions: Our study highlights the importance of early diagnosis of sleep obstructive apneas in ALS population, allowing the identification of an ALS phenotype with presence of OSA (AHIo ≥ 5), characterized by a worst prognosis.