Lack of daytime sleepiness in patients with atrial fibrillation and sleep-disordered breathing – implications for clinical care

Kadhim Kadhim
Adrian Elliott
Melissa Middeldorp
Dione Jones
Rajiv Mahajan
Jeroen Hendriks
R. Doug McEvoy
Dennis Lau
Jon Kalman
Prash Sanders
Dominik Linz

Introduction: Sleep-disordered breathing (SDB) is common in patients with atrial fibrillation (AF) and may be associated with daytime sleepiness. Increased daytime sleepiness can further exacerbate AF symptoms and have a potential negative impact on quality of life for patients. We sought to assess the correlation between self-reported daytime sleepiness and objective sleep-related measures of sleep-disordered-breathing in patients with AF.

Methods: Prospectively-collected data for 442 consecutive AF patients who were considered candidates for rhythm-control and referred for polysomnography were analysed. Subjective effects of SDB on daytime sleepiness was quantified using the Epworth Sleepiness Scale (ESS, scale 0-24). Polysomnography-derived parameters included apnoea hypopnoea index (AHI, /hr), total sleep duration (minutes), sleep efficiency (time asleep/time spent in bed, %) and arousal index (arousals/hour) were analysed. SDB severity was classified according to AHI as no SDB (AHI<5), mild SDB (AHI 5-14), and moderate-to-severe SDB (AHI≥15).

Result: Two-thirds (66%) of the population had SDB (AHI≥5/hr) of whom 56% had paroxysmal AF. Mean age for SDB patients was 62±10 years, mean body mass index was 31.2±5.3 kg/m2 and 74% were men. Mean ESS was 6±4 and did not differ as the severity of SDB increased (p=0.2). There was a poor correlation between ESS and AHI (r=0.135, p=0.012). Patients with moderate-to-severe SDB (n=149, 51%) slept less than those with mild SDB (n=143, 49%), with total sleep durations of 286±90.5 minutes and 322±74 minutes respectively, p<0.001. These patients also slept less efficiently (sleep efficiency: 68±16% vs 73±15%, p=0.008), and with higher arousals per hour (arousal index 16.1±6.6/hr vs 30.2±17.6, p<0.001). However, there was no difference in the reported daytime sleepiness levels (ESS of 5±4 for mild vs 6±4 for moderate-to-severe SDB, p=0.2). The proportion of patients with excessive daytime sleepiness (ESS>10) did not differ significantly between the groups (9.1% for mild vs 14.8% for moderate-to-severe SDB, p=0.14).

Conclusion: Self-reported daytime sleepiness correlated poorly with AHI, the standard objective measure of SDB severity. Additionally, patients with more severe SDB had shorter sleeping durations, less efficient sleep and more arousals per hour, yet report no difference in daytime sleepiness. Lack of...
excessive daytime sleepiness should not preclude patients with AF from being investigated for potential SDB.