

Severe sleep apnea is associated with atrial fibrillation burden in pacemaker recipients

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Background: New generation pacemaker allow the assessment day by day of sleep disordered breathing (SDB) based on impedance measurement. A recent study demonstrated that incidence of AF is higher in case of severe SA monitored by pacemaker

Purpose: The aim was to compare the atrial fibrillation (AF) burden between patients with severe and non-severe sleep apnea (SA) detected with pacemakers monitoring (SDB).

Methods: This retrospective study was carried out at our University Hospital. We included all patients with Microport CRM pacemaker implanted from 2013 to 2016 at our university hospital. Exclusion criteria were inactivation of sleep apnea monitoring (SAM), history of sleep apnea, missing data or invalid data. AF burden was assessed according to Fallback mode switch (FMS) duration. Respiratory disturbance index (RDI) was calculated as the average number of events (ventilation pause and reductions) per number of hours of monitoring. Patients with RDI<20/h were compared with patients with RDI≥20/h (considered as severe SA group).

Results: 404 patients (mean age = 79.7±10 years; 52.0% men) were included. The most prevalent indication for cardiac pacing was atrioventricular block in 57%. Mean RDI was 18.9 events per hour. 234 (58%) of them had a mean RDI <20 and 170 (42%) had a mean RDI ≥20. Compared to patients with mean RDI<20, those with mean RDI ≥20 were younger (78.6±10 years Vs 81.8±8 years; p=0.02), were more likely to be male (58.2% Vs 47.5%: p=0.035) and had more heart failure history (28.8% Vs 19.2%: p=0.03). BMI was not different between groups (26.3±5. vs 26.3±4; P=0.33). Mean follow-up was 27 months. Patients with RDI ≥20 had a mean Atrial fibrillation duration longer than patients with RDI <20 (631 min Vs 291 min respectively; p=0.014). RDI was correlated with FMS (r=0.26; p=0.0004). The stroke rate tended to be higher in the RDI ≥20 group (2.1% vs 5.4%) (p=0.12).

Conclusion: Severe SA detected by pacemaker was associated with longer AF duration. We did not find higher occurrence of stroke in the severe SA group.

Clinical outcomes after a mean follow-up of 27 months

Clinical outcomes	All (n=404)	RDI <20 (N=234)	RDI >20 (N=170)	P value
Death, n (%)	69 (21)	39 (20)	30 (22)	0.68
Mean FMS duration, min	501±1621	291±1012	631±1733	0.01
Ischemic stroke, n (%)	11 (3)	4 (2.1)	7 (5.4)	0.12
Congestive heart failure, n (%)	66 (21)	43 (22)	23 (18)	0.4

Significant result p<0.05. Values are mean ± standard deviation or number of patients (%). Abbreviations: AF, Atrial fibrillation; FMS, Fallback mode switch; LVEF, Left ventricular ejection fraction.