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Title: Sleep disordered breathing in patients undergoing transfemoral aortic valve implantation for severe aortic stenosis

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Body: Purpose: We examined the prevalence of sleep-disordered breathing (SDB) in patients (pts) with severe aortic valve stenosis before and after transfemoral aortic valve implantation (TAVI). Methods: 79 pts (50 % males, average age 83.0 ± 6.3 years) had cardiorespiratory polygraphy (PG) screening before TAVI. 62 of them (48.4 % males, mean age 82.5 ± 6.5 years) underwent a second PG screening 21.0 ± 4.7 days after TAVI. Results: 49 (62.0%) pts had OSA, 25 (31.6%) CSA and only 5 (6.3%) presented without significant SDB (apnoea-hypopnoea-index, AHI <5/h). Of 62 pts evaluated before and after valve implantation 36 (58.1%) had OSA, 21 (33.8%) presented with CSA and no SDB was detected in 5 pts (8.0 %). SDB was more severe in CSA compared to OSA (AHI 34.5±18.3/h vs. 18.0±12.6/h, p<0.001). Successful TAVI had a significant impact on CSA, but not on OSA: pts with optimal TAVI results (aortic valve regurgitation, AI ≤ grade 1) demonstrated a significant reduction of central respiratory events (39.6±19.6/h to 23.1±16.0/h, p=0.035), while no changes were detected regarding OSA (18.8±13.0/h to 20.25±13.4/h, p=0.376). Pts with primarily suboptimal TAVI results (AI ≥ 2) presented with no change in OSA (10.5±7.8/h to 12.5±5.0/h, p=0.5) and an increase in central respiratory events (26.3±13.2/h to 39.2±18.4/h p= 0.036). Conclusions: There is a high prevalence of OSA and CSA in pts in TAVI candidates. Successful TAVI had no significant impact on OSA, but improved CSA significantly. TAVI resulting in moderate to severe AI is accompanied by a deterioration of CSA. Presence of CSA after TAVI may indicate prognostically relevant haemodynamic alterations like AI and/or heart failure.