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# Body position affects critical closing pressures during drug-induced sleep endoscopy

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**Background/Objective**

Critical closing pressure (Pcrit) is useful to assess upper airway collapsibility in obstructive sleep apnoea (OSA), especially during controlled conditions with drug-induced sleep endoscopy (DISE). However, body position effects on Pcrit are rarely considered in DISE. Thus, we aimed to compare supine versus lateral and passive (minimal dilator muscle activation) versus active (prolonged respiratory challenges to recruit dilator muscles) Pcrit during DISE.

**Methods**

Supine and lateral passive and active Pcrit were measured from flow-limited airflow responses during mask pressure drops in 12 (11 male) patients undergoing DISE for ENT management of OSA (mean±SD age 51±11years, AHI 31±25/h). Measurements were obtained when Bispectral Index (BIS) was <70 to ensure sleep-like conditions. Bonferroni adjusted pairwise t-tests were performed to test for active versus passive Pcrit and differences between postures.

**Results**

Both passive and active Pcrit were higher supine versus lateral (mean [95% CI] difference passive 5.1 [1.2, 8.9]cmH2O, p=0.015; active 4.4 [1.8, 7.0]cmH2O, p=0.004). When supine, passive was higher than active Pcrit (difference 2.4 [0.5, 4.4]cmH2O, p=0.021) but not when lateral 1.4 [–4.1, 7.0]cmH2O, p=0.568), such that the greater difference was between passive supine and active lateral conditions (difference 7.4 [2.9, 11.9]cmH2O, p=0.005).

**Conclusions**

Airway stability is markedly improved in lateral versus supine body positions, with the lowest collapsibility observed under active lateral conditions. These effects likely contribute to night-to-night variability in OSA severity and support the use of positional and neuromuscular strategies to reduce upper airway collapse propensity in patients with OSA.

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