

Case Study on RDI Variability During Treatment with an Oral Appliance

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Introduction:

Reports of night-to-night variability in SDB have focused primarily on differences in diagnostic results. Few investigations have included repeated measures assessments to identify factors that influence treatment outcomes.

Methods:

A case study of a 48 year-old male with OSA. The patient completed four ARES unattended in-home sleep studies prior to treatment with a TAP II self-adjusting oral appliance. The baseline adjustment was at maximum active protrusion. Additional adjustments were made at one-half turn increments, for a total adjustment of two turns or 0.66 mm. An additional 18 ARES sleep studies were acquired over a 45-day titration period. Alcohol consumption within three-hours prior to sleep and the TAP adjustment setting were recorded.

Results:

The mean recording time across the 22 sleep studies was 6.2 ± 1.1 hours. The supine and non-supine RDI and percent time snoring above 40 dB were stratified into four conditions, pre-treatment (n=4) increased adjustment nights (n=3), and non-adjustment nights with alcohol (n=8)(mean alcohol consumption 1.6 drinks/night) or without alcohol (n=7). Across the four conditions, the mean overall RDI based on the Chicago Criteria for each of the four conditions were 27, 16, 12 and 9. The mean supine RDI for each of the four conditions were 51, 21, 21 and 11. The mean percent time supine were 5, 4, 9 and 16. The mean non-supine RDI were 25, 16, 12 and 9. The mean percent time snoring above 40 dB were 49, 26, 13 and 5.

Conclusions:

This case study suggests that alcohol consumption and appliance adjustment can affect the RDI, percent time supine and percent time snoring. Assessing the treatment outcome immediately after an adjustment may not reflect the true benefit of the appliance. This report suggests the benefit of studying patients on multiple nights under realistic conditions to obtain a more accurate assessment of treatment outcomes.

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