



Split Night Sleep Study Report

Patient Name:

Date of Study:

Date of Birth:

Referring Provider:

History: The patient is a 55 year-old 68.0-inch tall, 240.0 pound Male with a BMI of 36.5, referred for sleep analysis. The patient's main complaint is loud snoring, and breathing or snoring stops for brief periods in his sleep.

The Epworth Sleepiness Score is 0/24.

Sleep Study Technique: The patient underwent attended polysomnography with standard montage using the Sandman Sleep System. Montage included EEG, EOG, airflow pressure transducer, respiratory effort, pulse oximetry, EMG for limb/chin movements and ECG. Hypopneas were scored using AASM rule VII.4.A (4% desaturations, 30% reduction in flow).

RESULTS

Total Sleep Time (minutes)	270.0
Apnea-Hypopnea Index (events/hour)	72.8
Time with SaO2 less than 90% (minutes)	135.9
Lowest SaO2	51.0%
AHI at Optimal Pressure (Events/hour)	9.4

Sleep Architecture: Sleep onset latency was delayed at 71.4 minutes. REM latency was 111.0 minutes, which is normal. Total sleep time was 270.0 minutes. Sleep efficiency was 59.8%, which is poor. Sleep staging is notable for delayed sleep latency, and a short total sleep time with poor efficiency.

Baseline Study

Respiratory events: During 122.0 minutes of baseline sleep without supplemental oxygen or CPAP, the patient presented with **Severe Obstructive Sleep Apnea, with an Apnea/Hypopnea Index (AHI) of 72.8 events/hour** (normal <5/hour). The **Respiratory Disturbance Index (RDI)**, which includes more subtle Respiratory Effort Related Arousals (RERAs), **was also 72.8 events/hour**. The frequency of respiratory events was significantly higher during supine sleep (AHI 125.5 events/hour) than during non-supine sleep (AHI 67.6 events/hour). The frequency of respiratory events was similar during REM sleep (AHI 70.9 events/hour) and NREM sleep (AHI 73.0 events/hour).

Moderate, loud snoring was recorded during the study.

Arousals: Sleep was severely fragmented with a total of 121 arousals and 59.5 arousals/hour. There were 27.0 respiratory-related arousals/hour, 32.5 spontaneous arousals/hour, and 0.0 limb movement-related arousals/hour.

Limb Movements: The patient had 0 periodic limb movements (PLMs) throughout the night for an index of 0.0/hour (normal <15/hour). There were 0.0 arousals/hour associated with limb movements.

Heart Rate Summary: The average heart rate was 68.2 beats/minute, and the rhythm was normal sinus rhythm with no ectopy.

Pulse Oximetry: Mean oxygen saturations were **91.8%** with **60.7** minutes of the study below 88% saturation. The low oxygen saturation was **51.0%**. Oxygen saturations were <90% for **86.6** minutes. There were frequent oxygen desaturations to the mid 80s with respiratory events during NREM sleep and to the 60s during REM sleep.

CPAP Summary

CPAP was titrated from 5 to 7 cmH₂O without the use of supplemental oxygen. At an optimal CPAP pressure of 7 cmH₂O, the AHI and RDI were 9.4 events/hour during 115 minutes of mixed NREM and REM sleep in the exclusively non-supine position. At this pressure, the mean oxygen saturations were 92.1%, with no significant desaturations.

IMPRESSION

1. **Severe Obstructive Sleep Apnea, with an AHI and RDI of 72.8 events/hour.** Respiratory events were associated with occasional oxygen desaturations to the 60s. ICD-9 code 327.23.
2. CPAP was titrated to 7cmH₂O for AHI of 9.4 events/hour and a mean saturation of 92.1%.
3. Sleep architecture notable for delayed sleep latency, and a short total sleep time with poor efficiency.
4. Epworth Sleepiness Score of 0/24, suggesting a normal degree of daytime sleepiness.
5. Moderate, loud snoring was recorded during the study.

RECOMMENDATIONS

1. Consider a trial of CPAP at a pressure of at least 7 cm/H₂O utilizing a Medium Respironics Full Life Full Face mask with heated humidification. There were still scattered respiratory events at this pressure during REM sleep in the lateral position, so it is possible that a slightly higher pressure will be required to control events during REM sleep or if the patient sleeps supine. Auto-titrating CPAP with a pressure range of approximately 5-15 cmH₂O would be a reasonable alternative. Close clinical follow-up, possibly including the use of a CPAP device with full-download capability to help monitor clinical efficacy, is recommended.
2. A follow-up with referring physician or a sleep consultation is also recommended.
3. Please notify our sleep lab if you would like us to take care of setting the patient up on CPAP. We will arrange for a DME company to provide the appropriate equipment.



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