



CARDIOLOGY ASSOCIATES
OF NEW BRUNSWICK

Cardiology Associates of New Brunswick
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Patient Name	[REDACTED]	Age	37 years
Date of Birth	03/08/1972	Gender	male
Patient SSN	[REDACTED]	Height	66
Weight	250	BMI	41
Date of Study	09/13/2009	Ref. Physician	Dr. Maritorosov
Type of Study	Emergency Intervention	Int. Physician	Gerald Weisfogel, M.D.

This 37 year old male is referred with complaints of snoring or pauses in breathing, sweating excessively, and tingling in his arms or legs. He reported delays in sleep onset because of the temperature of the bedroom. He denied hypnagogic hallucinations, cataplexy and sleep paralysis. He reported sleep disturbance caused by the need to go to the bathroom. His normal time in bed is 11 PM until 06 AM on weekdays and 11 PM until 04 AM on weekends. His Epworth Sleepiness Score was [REDACTED]. He works in IT and his normal work hours are 08 AM until 05 PM. He sleeps in a bed and he feels that he does not get enough sleep. He reports daily consumption of 1 cup of alcoholic beverages. He has a history of tobacco use.

Previous Cardiac History: High Cholesterol, Hypertension

Previous Medical History: Allergies

Current Medications: Allegra D

Previous Surgical History: Tonsillectomy

Family History: Premature Cardiovascular Death (died from heart disease when they were younger than 70 years of age), Stroke or TIA, Heart Attack

Previous Polysomnogram/ Sleep Diagnosis:

PROCEDURE: The polysomnogram was performed with a sleep technologist in attendance. EEG, ECG, EOG, EMG and respiratory parameters including flow, effort and snoring were recorded. Sleep stages were scored according to Rechtschaffen and Kales criteria for sleep staging. Periodic limb movements and EEG arousals during sleep were scored according to criteria from the American Academy of Sleep Medicine. Data acquisition, collation and scoring have been validated and clinically correlated.

Results:

The patient [REDACTED] was in bed for 464.0 minutes and slept for 359.5 minutes for a sleep efficiency of 77.5%, with a normal sleep efficiency being 85% or greater. Total wake time was 104.5 minutes with 96.4 minutes of wake after sleep onset. Sleep onset latency was 8.1 minutes and the REM latency was 99.5 minutes.

Cardiac analysis revealed a mean heart rate of 71.0 and a minimum heart rate of 54.1. The patient was in sinus rhythm.

There are a total of 260 periodic limb movements for an index of 43.4 movements/hour. The associated PLM arousal index was 6.8 arousals/hour.

CPAP ANALYSIS

Level	Rec. Time [Mins]	Sleep					Position		Arousal Index	Snore	Saturation	
		Sleep Time [Mins]	Sleep Eff. [%]	REM [Mins]	NREM [Mins]	REM/Supine	Supine	SaO2 Drop [mmHg]			Low SaO2 [%]	
0/0	141.7	118.0	83.3	24.2	75.8	8.7	58.4	28.5	35.9	105	66.9	
4/4	54.3	1.5	2.8	0.0	100.0	0.0	0.0	40.0	1.8	8	88.4	
6/6	17.6	9.1	51.6	0.0	100.0	0.0	0.0	105.5	0.3	18	86.2	
8/8	19.0	18.5	97.4	0.0	100.0	0.0	0.0	22.7	2.1	7	89.1	
9/9	23.9	23.9	100.0	52.4	47.6	0.0	0.0	10.1	0.6	1	92.8	
11/11	48.0	37.0	77.1	8.1	91.9	0.0	3.0	17.8	0.5	12	85.0	
13/13	11.8	11.8	100.0	0.0	100.0	0.0	11.8	71.3	0.8	14	83.9	
14/14	11.1	10.6	95.5	0.0	100.0	0.0	10.6	79.4	0.4	14	85.9	
15/15	18.3	17.8	97.3	68.4	31.6	12.2	17.8	43.8	2.5	13	83.3	
16/16	10.4	9.9	95.2	100.0	0.0	9.9	9.9	36.5	0.8	9	87.1	
17/17	23.5	21.5	91.5	95.1	4.9	20.5	21.5	27.9	1.1	7	86.1	
18/18	11.6	11.6	100.0	0.0	100.0	0.0	11.6	36.4	1.1	7	91.1	
19/19	10.9	10.9	100.0	0.0	100.0	0.0	10.9	11.1	2.0	2	92.5	
20/20	16.2	16.2	100.0	0.0	100.0	0.0	16.2	3.7	2.4	0	92.8	
21/21	19.3	18.8	97.4	2.3	97.7	0.0	9.8	16.0	0.8	0	92.9	
22/22	21.8	19.8	90.8	100.0	0.0	0.0	0.0	30.4	0.1	1	91.5	
23/23	4.7	2.8	59.1	100.0	0.0	0.0	0.0	21.8	0.8	0	94.7	

during Recording Time

Level	Respiratory Events					RDI					AHI				
	OA	CA	MA	HYP	RERA	Total	Supine	REM	NREM	REM/Supine	Total	Supine	REM	NREM	REM/Supine
0/0	2	0	0	124	8	68.1	63.8	58.9	71.1	69.0	64.1	62.7	58.9	65.7	69.0
4/4	0	1	0	0	0	40.0	0.0	0.0	40.0	0.0	40.0	0.0	0.0	40.0	0.0
6/6	2	9	3	3	1	118.7	0.0	0.0	118.7	0.0	112.1	0.0	0.0	112.1	0.0
8/8	0	0	0	15	1	51.8	0.0	0.0	51.8	0.0	48.6	0.0	0.0	48.6	0.0
9/9	0	0	0	3	2	12.6	0.0	19.2	5.3	0.0	7.5	0.0	14.4	0.0	0.0

11/11	3	0	0	3	0	10.2	120.0	20.0	15.9	0.0	13.0	120.0	20.0	12.4	0.0
13/13	2	0	0	16	0	91.7	91.7	0.0	91.7	0.0	91.7	91.7	0.0	91.7	0.0
14/14	1	0	0	14	0	85.0	85.0	0.0	85.0	0.0	85.0	85.0	0.0	85.0	0.0
15/15	0	0	0	15	1	53.9	53.9	64.1	32.0	64.1	50.6	50.6	59.2	32.0	59.2
16/16	0	0	0	9	1	60.9	60.9	60.9	0.0	60.9	54.8	54.8	54.8	0.0	54.8
17/17	0	0	0	8	4	33.4	33.4	29.3	114.3	29.3	22.3	22.3	17.6	114.3	17.6
18/18	0	0	0	12	2	72.7	72.7	0.0	72.7	0.0	62.3	62.3	0.0	62.3	0.0
19/19	0	0	0	2	0	11.1	11.1	0.0	11.1	0.0	11.1	11.1	0.0	11.1	0.0
20/20	0	0	0	2	0	7.4	7.4	0.0	7.4	0.0	7.4	7.4	0.0	7.4	0.0
21/21	0	0	0	5	0	16.0	24.4	0.0	16.4	0.0	16.0	24.4	0.0	16.4	0.0
22/22	0	1	0	2	6	27.3	0.0	27.3	0.0	0.0	9.1	0.0	9.1	0.0	0.0
23/23	0	0	0	0	1	21.8	0.0	21.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Discussion:

During the baseline period of 142.0 minutes, there was a total of 116.0 minutes of sleep recorded. Respiratory events occurred, numbering a total of 2 obstructive apneas, 0 central apneas, 0 mixed apneas, 124 hypopneas, and 8 respiratory effort related arousal events (RERAs). The total apnea-hypopnea index (AHI) was 64.1 with a respiratory disturbance index (RDI) of 68.1. During the baseline portion of the study, REM sleep accounted for 28.5 minutes with a REM related AHI of 58.9 and a REM RDI of 65.6. Supine sleep accounted for 56.4 minutes with an AHI of 62.7 and a RDI of 63.0. REM/supine indices were AHI of 69.0 and RDI of 69.0. **This baseline period is compatible with severe OSA and significant hypoxemia.**

This study was followed by a PAP titration which started at 4 and increased to 23 cm/H2O. CPAP was well tolerated with 20cm/H2O resulting in the best control of the respiratory events.

The PLM index is elevated. The significance of these movements will need to be evaluated after control of the respiratory events.

Final impressions:

- Obstructive Sleep Apnea [327.23]- SEVERE

Recommendations:

- CPAP at 20 cm/H2O
- Follow-up in sleep clinic in 1 month after starting PAP for compliance monitoring
- Weight management to maintain or achieve ideal body weight
- Avoid alcohol and large meals within 3 hours of sleep
- Avoid driving while drowsy
- Follow-up with referring physician as medication requirements may change

I have reviewed these Impressions and these Recommendations and find them to be final.

Dr. Maritorosov

Date

Gerald Weisfogel, MD, FACC, D.ABSM.
Medical Director.

Electronically signed on 09/28/2009