

Ochsner Health System
Sleep Center
Tel: 504 842-4910

Baseline PSG/MSLT REPORT

Patient Name: Bodin, Jeffery Clinic #: 2592229 Date of Study: 2/2/2015

Patient Name: Bodin, Jeffery		Hospital #:	83000256150
Sex:	Male	Study Date:	2/2/2015
D.O.B.:	5/22/1997	Clinic #:	2592229
Age:	17	Referring Physician:	Liudmila Lysenko, MD
Height:	67.0 in	Referring Physician #	2478
Weight:	107.0 lbs	Sleep Specialist:	L. Lysenko, MD
B.M.I.:	16.8	Sleep Specialist #	2478
Hypopnea rule:	AASM1A	Scoring Tech:	A.Becnel,RPSGT
Total AHI:	10.3	Recording Tech:	Leanett Sandifer, RRT
Lowest O2 sat:	91.0%	Recording Location:	Ochsner Baptist

Sleep architecture: This is a baseline polysomnogram. At light's out, the patient fell asleep in 3.5 minutes and slept for 94.4% of the time. Total sleep time (TST) was 401.5 minutes. 5.4% of TST was in Stage N1 sleep, 24.4% TST in slow wave sleep, and 21.2% TST in REM sleep. The REM latency was 69.0 minutes. Sleep architecture was mildly disrupted due to underlying sleep apnea.

Respiratory: Mild snoring was present. There was mild, yet significant OSA (obstructive sleep apnea) based on AHI (apnea hypopnea index) criteria. The overall AHI was 10.3 with an oxygen nadir of 91.0%. The supine AHI was 5.9 and the REM AHI was 30.4. The patient did not qualify for a split night study due to an insufficient number of events in the first half of the study.

Motor movement / Parasomnia: There were no significant limb movements of sleep noted. The total limb movement index was 0.0 (0.0with arousal).

Cardiac: Cardiac rhythm monitoring revealed a normal sinus rhythm ..

Patient perception: On a post-sleep study questionnaire, the patient indicated that sleep was "worse" in the lab than compared to home.

MSLT: Next day, for the MSLT 4 naps were recorded at 2 hour intervals, for approximately 20 minutes duration each, starting at a lights out time of 7:35 AM AM for Nap 1. She fell asleep on 4/4 naps and developed sleep onset REM periods (SOREMPs) on 4/4 naps. The sleep onset latency for Naps 1 through 4 were 3:30 min, 1:00 min, 0:30 min, 2:00 min, respectively. The 4 nap-mean sleep latency was severely diminished at 1.5 minutes. The patient felt that she fell asleep on naps 1-4. Urine drug screen on the morning of the MSLT was negative.

IMPRESSION:

1. Severely diminished sleep onset latency of 1.5 minutes was noted on MSLT with 4/4 SOREMS (sleep onset REM periods). This is suggestive of narcolepsy in appropriate clinical context.
2. Mild, yet significant OSA (327.23) based on AHI criteria

RECOMMENDATION:

1. Clinical correlation is suggested.

Liudmila
Lysenko, MD

Digitally signed by Liudmila Lysenko, MD
DN: cn=Liudmila Lysenko, MD, o=Ochsner Health System, ou=Ochsner, email=liudmila.lysenko@ochsner.com, c=US
Date: 2015.02.10 13:18:33 -0600

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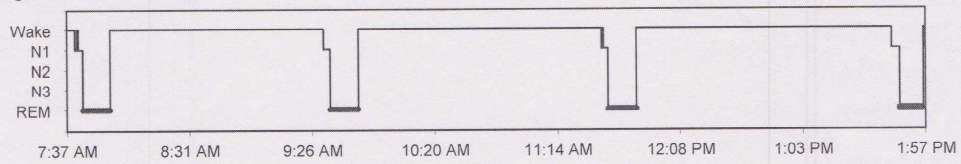
Patient Name: Bodin, Jeffery Clinic #: 2592229 Date of Study: 2/2/2015

MULTIPLE SLEEP LATENCY TEST:

Sleep Architecture	NAP 1	NAP 2	NAP 3	NAP 4	NAP 5	Mean Values
Analysis Start Time:	7:37:28 AM	9:29:58 AM	11:33:28 AM	1:40:28 PM	N/A	-
Analysis End Time:	7:55:58 AM	9:45:58 AM	11:48:58 AM	1:57:28 PM	N/A	-
Time in Bed*:	18:30	16:00	15:30	17:00	N/A	16:45
Total Sleep Time*:	14:30	15:00	14:30	14:30	N/A	14:38
Sleep Onset*:	03:30	01:00	00:30	02:00	N/A	01:45
REM Latency*:	03:30	03:00	03:00	03:30	N/A	03:15

* Time formats are in min:sec. Note: report will return default time = 20 min. for Sleep Onset, if no sleep occurs during nap.

Hypnogram



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Sleep Architecture

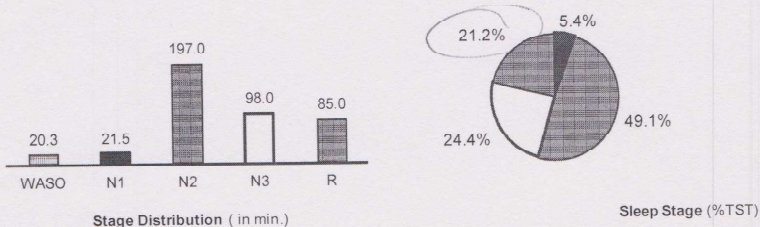
Lights out clock time (hr:min): 10:44:13 PM
 Lights on clock time (hr:min): 5:49:32 AM

Total Recording Time (TRT; in min.): 425.3
 Sleep Period Time (SPT)*: 7:01:50
 Total Sleep Time (TST; in min.): 401.5
 Sleep Efficiency: 94.4%

Sleep latency (SL): 0:03:30
 Total Stage Changes (after sleep onset): 101
 Awakenings (after sleep onset): 22
 WASO (min.): 20.3

REM Periods: 6
 REM Latency*: 1:10:00
 REM Latency (less Wake time)*: 1:09:00

* Time formats are in hrs:min:sec



Sleep Stage	Latency (min)
N1:	0.0
N2:	3.5
N3:	14.0
R:	70.0

Stage Latency = 0.0 denotes start of sleep.

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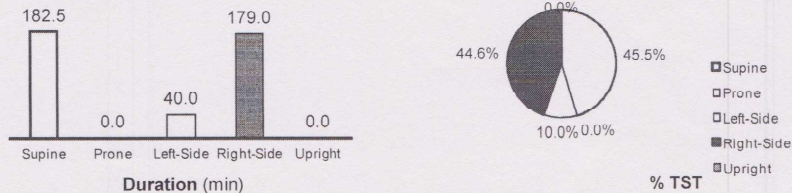
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RESPIRATORY EVENTS	Gen. Apneas	Obs. Apneas	Mxd. Apneas	Hypopneas	Total Apneas	Apnea+ Hypopnea	RERA	All Resp. Events *
Count:	6	0	0	63	6	69	0	69
Index (events / hr.):	0.9	0.0	0.0	9.4	0.9	10.3	0.0	10.3
Mean Duration (sec.):	12.5	N/A	N/A	19.9	12.5	19.2	N/A	19.2
Longest Event (sec.):	14.4	N/A	N/A	44.7	14.4	44.7	N/A	44.7
REM Count:	3	0	0	40	3	43	0	43
Non-REM Count:	3	0	0	23	3	26	0	26
REM Index:	2.1	0.0	0.0	28.2	2.1	30.4	0.0	30.4
Non-REM Index:	0.6	0.0	0.0	4.4	0.6	4.9	0.0	4.9

* Note: Does not contain Cheyne Stokes Breathing, Hypoventilation, or Periodic Breathing.

RESPIRATORY EVENTS (by Body-Position)	Supine Count	Sleep Index	Prone Sleep Count	Prone Sleep Index	Left-Side Sleep Count	Left-Side Sleep Index	Right-Side Sleep Count	Right-Side Sleep Index	Upright Sleep Count	Upright Sleep Index
Duration (hrs:min:sec):	3:02:30		0:00:00		0:40:00		2:59:00		0:00:00	
Obstructive Apneas:	0	0.0	N/A	N/A	0	0.0	0	0.0	N/A	N/A
Central Apneas:	1	0.3	N/A	N/A	1	1.5	4	1.3	N/A	N/A
Mixed Apneas:	0	0.0	N/A	N/A	0	0.0	0	0.0	N/A	N/A
Hypopneas:	17	5.6	N/A	N/A	2	3.0	44	14.7	N/A	N/A
RERAs:	0	0.0	N/A	N/A	0	0.0	0	0.0	N/A	N/A
Total*:	18	5.9	N/A	N/A	3	4.5	48	16.1	N/A	N/A

* Note: Does not contain Cheyne Stokes Breathing, Hypoventilation, or Periodic Breathing.



BODY-POSITION RESULTS

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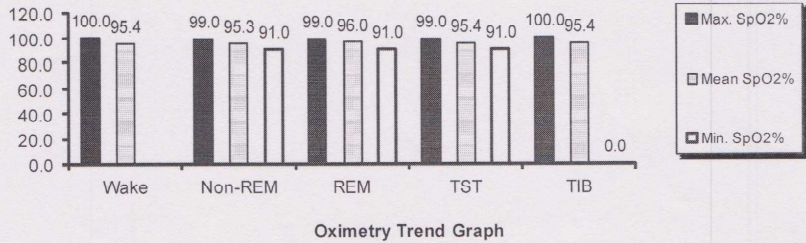
Patient Name: Bodin, Jeffery Clinic #: 2592229 Date of Study: 2/2/2015

AROUSALS	Resp. Count	Resp. Index	Spontaneous Count*	Spontaneous Index*	Total Count	Total Index
Total Sleep Time:	49	7.3	60	9.0	109	16.3
Non-REM	17	3.2	28	5.3	45	8.5
REM:	32	22.6	32	22.6	64	45.2

* EEG Arousal activity not associated with Respiratory or PLM events.

LIMB MOVEMENTS (by sleep stage)	LM w/ Arousals		LM w/o Arousals		Total LMs		PLM Series	
	Count	Index	Count	Index	Count	Index	Count	Index
Total Sleep Time:	0	0.0	0	0.0	0	0.0	0	0.0
N1:	0	0.0	0	0.0	0	0.0	0	0.0
N2:	0	0.0	0	0.0	0	0.0	0	0.0
N3:	0	0.0	0	0.0	0	0.0	0	0.0
R:	0	0.0	0	0.0	0	0.0	0	0.0

OXYGEN DESATURATION EVENTS	Count	Index
Total Sleep Time:	56	8.4
Wake (after sleep onset):	0	0.0
Non-REM:	30	5.7
REM:	26	18.4



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OXYGEN SATURATION	Wake	Non-REM	REM	TST	TIB
Max. SpO2%:	100.0	99.0	99.0	99.0	100.0
Mean SpO2%:	95.4	95.3	96.0	95.4	95.4
Min. SpO2%:		91.0	91.0	91.0	0.0
SpO2% <= 89% (min.)	0.2	0.0	0.0	0.0	0.2
% Time in range					
90 – 100%:	97.4%	99.8%	99.0%	99.6%	99.5%
80 – 89%:	0.9%	0.0%	0.0%	0.0%	0.1%
70 – 79%:	0.0%	0.0%	0.0%	0.0%	0.0%
60 – 69%:	0.0%	0.0%	0.0%	0.0%	0.0%
50 – 59%:	0.0%	0.0%	0.0%	0.0%	0.0%
< 50%:	0.4%	0.0%	0.0%	0.0%	0.0%
% Artifact / Bad Data:	1.2%	0.2%	1.0%	0.4%	0.4%

HEART RATE RESULTS	Wake	Non-REM	REM	TST	TIB
Mean HR (bpm):	66.5	49.8	57.3	51.4	52.3
% Time in range					
> 100 (bpm):	1.0%	0.0%	0.0%	0.0%	0.1%
90 – 100 (bpm):	1.9%	0.0%	0.0%	0.0%	0.1%
80 – 89 (bpm):	13.3%	0.3%	0.9%	0.4%	1.1%
70 – 79 (bpm):	26.4%	0.9%	7.8%	2.4%	3.7%
60 – 69 (bpm):	21.4%	3.6%	38.2%	10.9%	11.5%
50 – 59 (bpm):	24.7%	33.3%	25.8%	31.7%	31.3%
< 50 (bpm):	11.3%	61.9%	27.3%	54.6%	52.2%
% Artifact / Bad Data:	0.0%	0.0%	0.0%	0.0%	0.0%

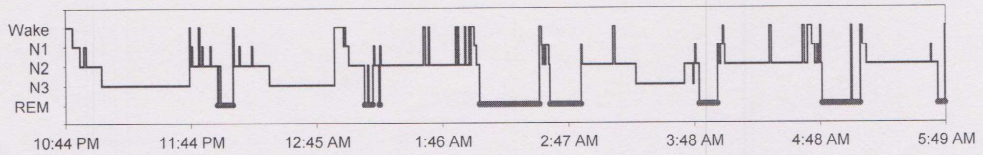
CARDIAC EVENTS	Brady.	Asystole	Tachy.	Narrow Complex Tachy.	Wide Complex Tachy.	Atrial Fibrillation	Accel.	Decel.
Count :	0	0	0	0	0	0	0	0
Shortest Event (min:sec):	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Longest Event (min:sec):	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Sum Duration (min:sec):	0:00:00	0:00:00	0:00:00	0:00:00	0:00:00	0:00:00	0:00:00	0:00:00
Absolute Max. Rate (bpm):	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Absolute Min. Rate (bpm):	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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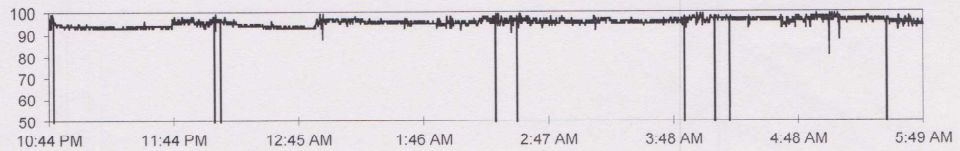
Hypnogram



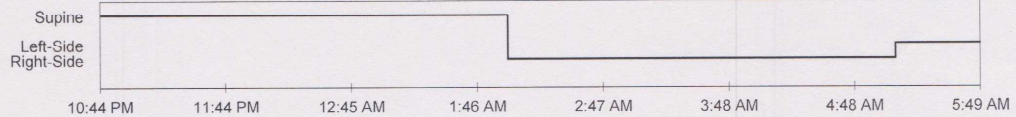
Respiratory Events



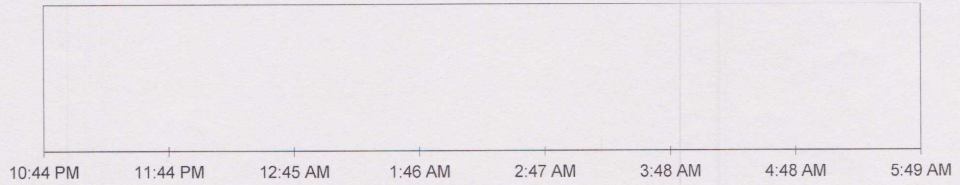
SpO2%



Body Position



Limb Movement Events



Progress Notes

Procedures
MD Anderson Sleep Center
PO Box 301439, Unit 1284
Houston, TX 77030
Phone: 713-792-2352

Multiple Sleep Latency Test Report

I. PATIENT PROFILE

Patient Name: Bodin, Jeffrey
Medical Record Number: 744652
Age: 19 (years)
Sex: Male
Height: 168 cm Weight: 50.0 Kg

BMI: 17.7 kg/m²
Study Date: 8/5/2016
Referring Physician: Dave Balachandran M.D., M.D.
Epworth Sleepiness Score (ESS): 14.0

II. DIAGNOSIS

Hypersomnia
347.00 Narcolepsy, Unspecified

III. PROCEDURE

The patient underwent a MSLT (multiple sleep latency test) according to the guidelines established by the American Academy of Sleep Medicine*. The patient was allowed to nap starting at two hours post awakening from the baseline study and subsequently at 2 hour intervals. During the baseline polysomnogram the sleep efficiency was 77/5%. There was no evidence of clinically significant sleep disordered breathing, nocturnal hypoxemia or movement disorders. The MSLT immediately followed the baseline study.

A total of four naps were performed. The patient slept during four of the four naps. The mean sleep latency (MSLT score) was 5.9 minutes. There were four sleep onset REM periods (SOREM) noted.

The diagnosis of narcolepsy requires 2 SOREMs, and an MSLT score of less than 8 minutes (mean sleep latency). An MSLT score of less than 10 minutes with less than 2 SOREMs can be seen in idiopathic (CNS) hypersomnia, upper airway resistance syndrome, periodic limb movement disorder and sleep apnea.

IV. CONCLUSION

The clinical history is suggestive of hypersomnia, and the MSLT is consistent with narcolepsy.

V. RECOMMENDATIONS

Stimulant therapy is recommended for daytime sleepiness.

Possible pharmacologic therapies include fluoxetine, venlafaxine, sodium oxybate, clomipramine, viloxazine, imipramine.

Additionally, HLA testing for DQ antigens (DQB1*0602 and DQA1*0102), which are associated with narcolepsy, and HLA-Cw2, which is associated with familial idiopathic hypersomnia, may provide further information.

Strategically timed naps should be incorporated in the patient's daily schedule.

The patient will be seen for a post-evaluation consultation with sleep clinic to discuss our findings and to explain the available treatment options.

If there are any questions regarding our examination, please feel free to contact our office for further elaboration or interpretation of our findings. Details concerning specific test scores and the results of sleep studies are available upon request.

Sincerely,
Diwakar Balachandran, MD
UT M. D. Anderson Sleep Center

* The International Classification of Sleep Disorders: Diagnostic and Coding Manual. Diagnostic Classification Steering Committee, Thorpy MJ, Chairman. Rochester, Minnesota: American Sleep Disorders Association, 2005

Berry RB, Brooks R, Gamaldo CE, Harding SM, Marcus CL and Vaughn BV for the American Academy of Sleep Medicine. The AASM Manual for the Scoring of Sleep and Associated Events: Rules, Terminology and Technical Specifications, Version 2.0. www.aasmnet.org, Darien, Illinois: American Academy of Sleep Medicine, 2012

Littner MR et al. Practice Parameters for Clinical Use of the Multiple Sleep Latency Test and the Maintenance of Wakefulness Test- AASM Practice Parameters. Sleep 2005; 28(1) 113-121

Electronically signed by Dave Balachandran, MD at 8/15/2016 1:17 PM

Procedure visit on 8/5/2016