WOOLCOCK
LEADERS IN BREATHING & SLEEP RESEARCH

Patient details

Patient name: CARLON, Emma   **Patient ID:** 22970

Study Type: Diagnostic   Study Date: 2/08/2022

Requesting Physician: Dr Andrew Ng
Referring Physician: Dr Beena Chaugule

DOB (dd/mm/yyyy): 6/12/1991   Gender: Female
Height (cm): 177   Evening BP (mmHg): 112/73
Weight (kg): 68   Morning BP (mmHg): 141/73
BMI (kg/m^2): 21.7   Snoring: Nil
Neck Circumference (cm): 33   ESS: 14/24
Subjective Sleep Latency: 4 hours
Subjective Total Sleep Time: 4 hours
Subjective Sleep Quality: Worse

Methodology

The patient underwent polysomnography study using the Compumedics Grael v2 PSG system with Profusion scoring software. The data was adequate for interpretation and the raw data was reviewed in its entirety. Scoring was based on the Recommended Standards and Specifications as outlined in the AASM Manual for the Scoring of Sleep and Associated Events, Version 2.2.

Summary
Sleep Architecture

Time available for sleep (min)	= 553.0	Sleep latency (min)	= 13.5
Total sleep time (min)	= 436.0	REM latency (min)	= 83.5
Wake after sleep onset (min)	= 103.5	NREM sleep (min)	= 364.5
Sleep efficiency (%)	= 78.8	REM sleep (min)	= 71.5

Respiratory, Movement and arousal events*

Total RDI (events/hr)	= 1.7	Minimum SpO$_2$ (%)	= 94
Total AHI (events/hr)	= 0.4	ODI (desat/hr)	= 0.0
RERA index	= 1.2		
RDI in NREM (events/hr)	= 2.0		
RDI in REM (events/hr)	= 0.0		

Limb Movement (Movement/hr)= 0.3

Total arousal index (arousals/hr)= 13.9   Limb arousal index (arousals/hr)= 0.1

(*Respiratory events = see page 5 for definition of apneas, hypopneas and RERA)

Interpretation

Scorer's Comments:

R/LegEMG malfunctioned overnight, otherwise, reasonable signal integrity overnight. Fragmented sleep architecture and reduced sleep efficiency recorded, prolonged WASO noted, reduced REM sleep portion. Alpha intrusion noted in SWS.

Sleep Physician's Report:

Technical comments noted. Fragmented sleep with alpha intrusions, but all sleep stages observed. No supine REM sleep captured. Nil snoring or significant obstructive respiratory events noted. Infrequent RERAS. Stable oxygen saturation throughout the study. ECG showed normal sinus rhythm.

Conclusion & Recommendations:

Nil significant sleep disordered breathing. Fragmented sleep. Clinical correlation recommended.

Yours sincerely

Dr. Yizhong Zheng

MBBS FRACP

Sleep and Respiratory Physician

cc: GP Dr Beena Chaugule, UTS Health Service, University Technology Sydney, 15 Broadway Ultimo NSW 2007, fax 0295147887

Detailed data

Sleep data

Sleep Architecture					
Analysis Start- Light Off:	20:49:56	Analysis End-Lights On	06:02:56	Total Sleep Time (min)	436
Time available for sleep (min)	553	Sleep Period (min)	539	Sleep Efficiency (%)	79
Sleep Latency (min)	13	REM Latency (min)	83	Awakenings (number)	25

Stage Distribution	Duration (min)	TST (%)
WASO	103.5	-
Stage N1	81.0	18.6
Stage N2	188.5	43.2
Stage N3	95.0	21.8
REM	71.5	16.4

Limb movement data

Event	Total count	Index (hr^{-1})
Limb Movement	2	0.3
LM arousal	1	0.1

Respiratory data

AHI	Supine	Non-Supine
NREM/hr	2.9	0.0
REM/hr	0.0	0.0

Arousal Events	NREM		REM		TST	
	Count	Index (hr^{-1})	Count	Index (hr^{-1})	Count	Index (hr^{-1})
Total Arousals	100	16.5	1	0.8	101	13.9
Spontaneous	90	14.8	1	0.8	91	12.5
Respiratory-related	1	0.2	0	0.0	1	0.1
Limb-related	1	0.2	0	0.0	1	0.1

Respiratory Events (by type)	Hypopnea	Obstructive Apnea	Central Apnea	Mixed Apnea	TOTAL
Count:	2	1	0	0	3
Index (event/hr)	0.3	0.1	0.0	0.0	0.4
In REM (event/hr)	0.0	0.0	0.0	0.0	0.0
In NREM (event/hr)	0.3	0.2	0.0	0.0	0.5
Max length of Event (sec)	23	15			-
Mean length of Event (sec)	21	15	0	0	19

Respiratory Events (by body position)	Supine Sleep		Prone Sleep		Left-Side Sleep		Right-Side Sleep	
	Count	Index	Count	Index	Count	Index	Count	Index
Time (hhr:mm)	1:3.0		0:0.0		1:54.5		4:17.5	
Hypopnea	2	1.9	0	0.0	0	0.0	0	0.0
Obstructive Apnea	1	1.0	0	0.0	0	0.0	0	0.0
Central Apnea	0	0.0	0	0.0	0	0.0	0	0.0
Mixed Apnea	0	0.0	0	0.0	0	0.0	0	0.0
TOTAL	3	2.9	0	0.0	0	0.0	0	0.0

Oxygen saturation	Wake	NREM	REM	TST
Mean. SpO_2%:	97	97	97	97
Min. SpO_2%	-	94	96	94
ODI (desat/hr)	-	0.0	0.0	0.0
% Time in range				
90 - 100%:	99	100	100	100
80 - 89%:	0	0	0	0
70 – 79%	0	0	0	0

Pulse Rate	NREM	REM	TST
Mean. PR (bpm)	56	61	57
Min. PR (bpm)	42	48	42
Max. PR (bpm)	100	76	100

Definitions:

Apnea: Complete cessation of airflow for ≥10 sec, measured via pressure transducer and a reduction by ≥90% via a thermister.

Hypopnea: Reduction in airflow ≥30% for ≥10 sec, measured via pressure transducer, with either an arousal or ≥3% desaturation.

RERA: Increased respiratory effort OR flattening of airflow for ≥10 sec leading to an arousal. Included in total arousal index.

AHI = Apnea Hypopnea Index; The number of apneas and hypopneas per hour of sleep. Does not include RERA's.

RDI = Respiratory Disturbance Index; The number of apneas, hypopneas and RERAs per hour of sleep.

Oxygen desaturation = =>3% desaturation from baseline SpO2

ODI = Oxygen desaturation index; the number of oxygen desaturations =>3% per hour of sleep.

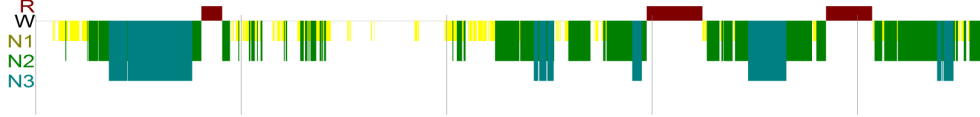PR = Pulse Rate

TST = Total sleep time

TIB = Time in bed

WASO = Wake after sleep onset

Graphic Summary

Hypnogram

Body Position
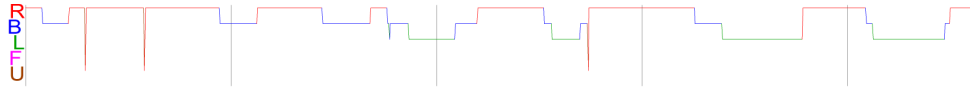
Arousal

Respiratory event graphs with RERA and hypopnea

Cn.A	+5
Ob.A	+5
Mx.A	+5
CN.H	+5
Ob.H	+5
Mx.H	+5
Uns	+5
RERA	+5
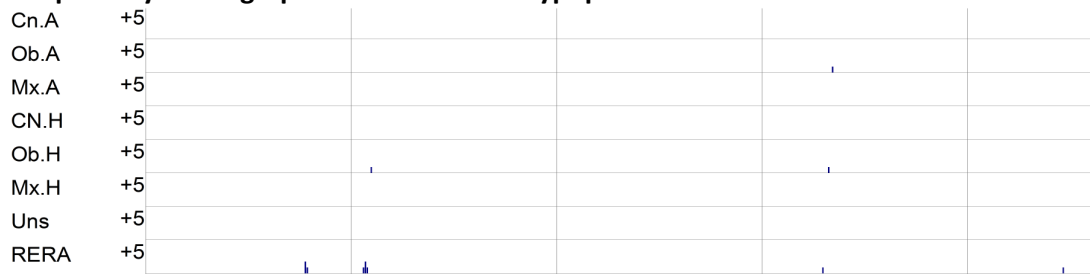
SpO2

Pulse rate

Leg movement

Time	9PM	10PM	11PM	12AM	1AM	2AM	3AM	4AM	5AM	6AM
Hrs	0		2		4		6		8	
Epoch	2		242		482		722		962	

8:49:56 PM   6:03:25 AM