World Sleep Day®

HOSTED BY WORLD SLEEP SOCIETY

MARCH 15, 2019 · HEALTHY SLEEP, HEALTHY AGING

Presented by
World Sleep Society

www.worldsleepday.org

WORLD SLEEP SOCIETY
ADVANCING SLEEP HEALTH WORLDWIDE

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2019 Slogan
"Healthy Sleep, Healthy Aging"

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World Sleep Day® is an annual event, intended to be a celebration of sleep and a call to action on important issues related to sleep, including medicine, education, social aspects and driving. It aims to lessen the burden of sleep problems on society through better prevention and management of sleep disorders.

www.worldsleepday.org

WORLD SLEEP SOCIETY
ADVANCING SLEEP HEALTH WORLDWIDE

2018 WORLD SLEEP DAY® OVERVIEW

282+
Official delegates joined the campaign

149
Sleep awareness activities added to worldsleepday.org

55
Countries notified us of participation in World Sleep Day

10,000
views with 89 shares for the announcement post for World Sleep Day

6
Award winning activities

#WorldSleepDay climbed to #2 on the, US, UK and Worldwide Top Trends on Twitter

1 million
Views on the World Sleep Day website

EXAMPLES OF GLOBAL MEDIA OUTLETS COVERING WORLD SLEEP DAY 2018

InStyle
Forbes
CNBC
BAZAAR
USA TODAY
Men's Health

www.worldsleepday.org

WORLD SLEEP SOCIETY
ADVANCING SLEEP HEALTH WORLDWIDE

World Sleep Day® Delegates Represent

• Algeria • Argentina • Armenia • Australia • Austria • Bolivia • Brazil • Bulgaria
• Caicos Islands • Canada • Chile • China • Colombia • Czech Republic
• Denmark • Egypt • El Salvador • Estonia • Finland • France • Georgia
• Germany • Guatemala • Hong Kong • Hungary • India • Indonesia • Israel
• Iran • Ireland • Italy • Japan • Jordan • Kuwait • Libya • Lithuania • Malaysia
• Mexico • Netherlands • New Zealand • Nigeria • Norway • Pakistan • Peru
• Philippines • Poland • Portugal • Puerto Rico • Qatar • Republic of Moldova
• Romania • Russia • Saudi Arabia • Scotland • Serbia • South Africa • Spain
• Sweden • Switzerland • Taiwan • Thailand • Turkey • United Arab Emirates
• United Kingdom • Uruguay • USA • Venezuela • Vietnam

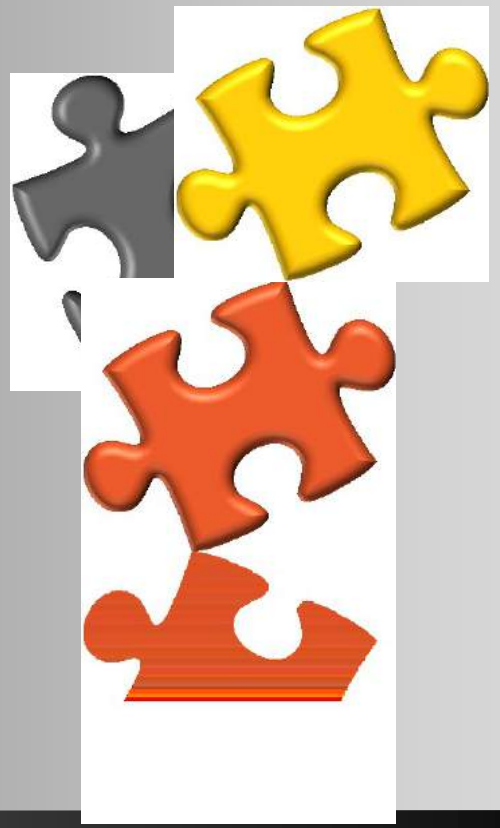
WORLD SLEEP SOCIETY
ADVANCING SLEEP HEALTH WORLDWIDE

El Salvador

2018 Distinguished Activity Award Winners

WORLD SLEEP SOCIETY
ADVANCING SLEEP HEALTH WORLDWIDE

SUEÑO Y DEMENCIA
INSOMNIO EN LA 3ª EDAD

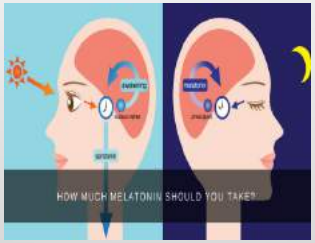


Dr. Luis Ernesto Gonzalez Sanchez
NEUROLOGO-NEUROFISIOLOGO-INTERNISTA

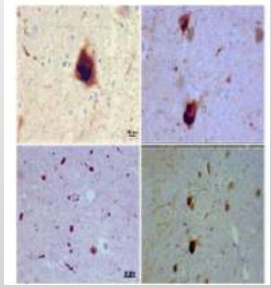
INSOMNIO

HIPERSOM

CIRCADIANO

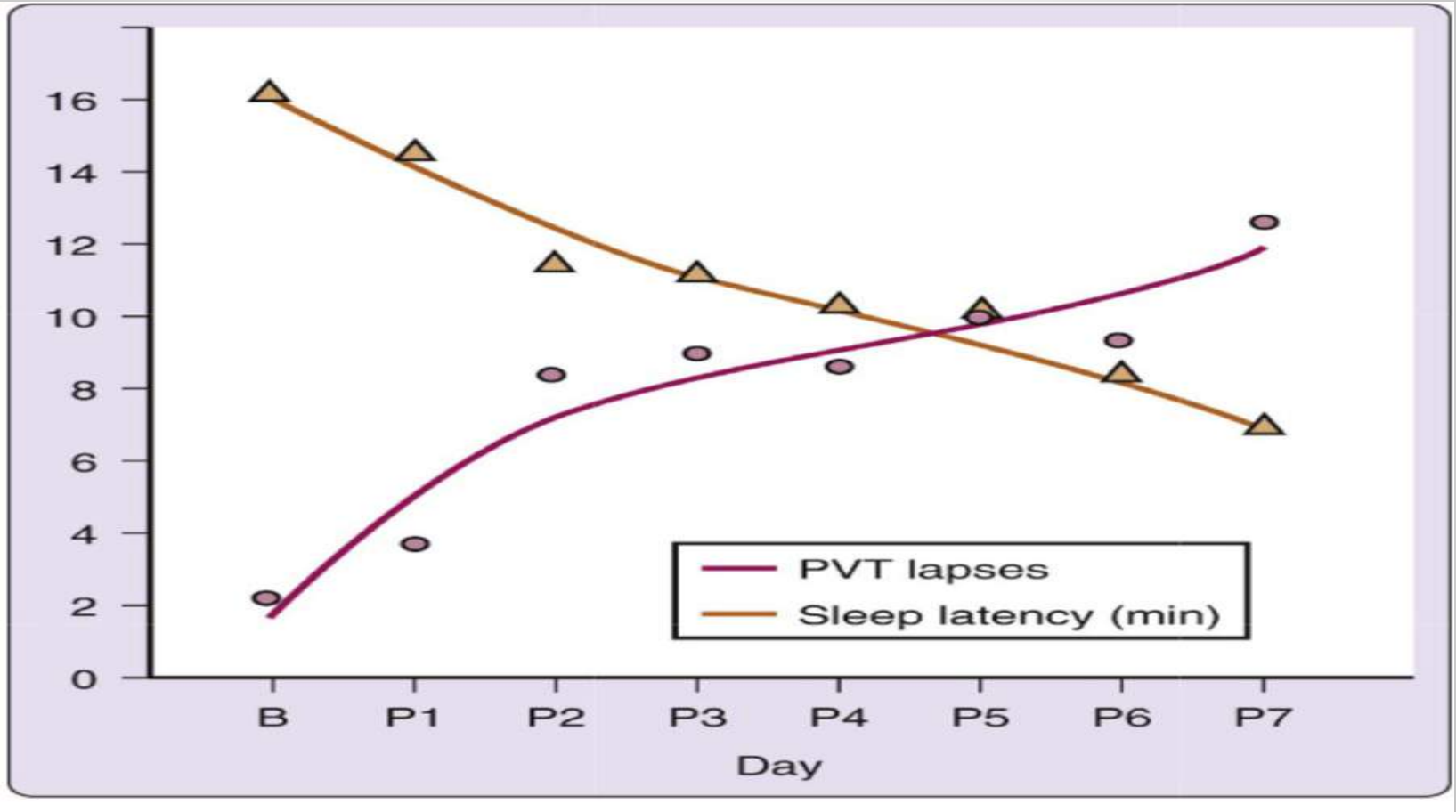


REM



RESPIRACION

RELACION DE SUEÑO CON VIGILANCIA (Restricción a 5 horas)

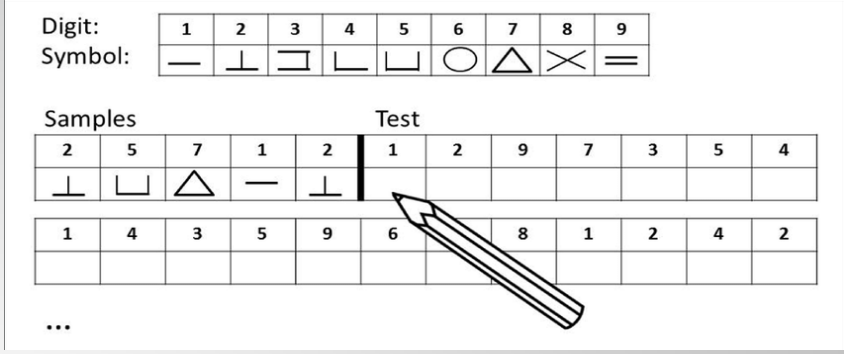


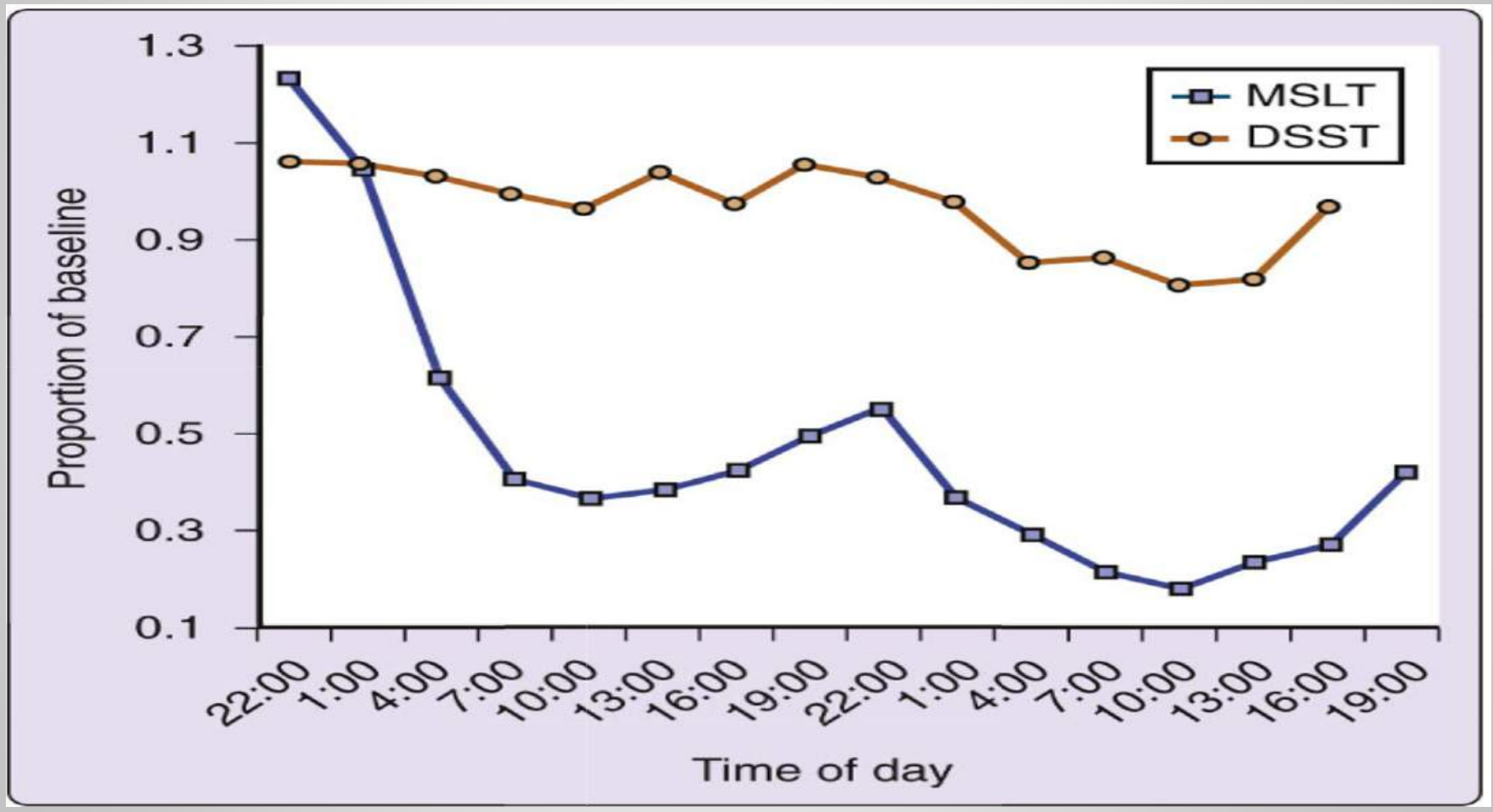
Redrawn from Dinges DF, Pack F, Williams K, et al. Cumulative sleepiness, mood disturbance, and psychomotor vigilance performance decrements during a week of sleep restricted to 4-5 hours per night. Sleep 1997;20:275.)

OTRAS ACTIVIDADES INTERRELACIONAS CON EL SUEÑO

SITUATION	PERCENTAGE OF PATIENTS
Watching television	91
Reading	85
Riding in a car	71
Attending church	57
Visiting friends and relatives	54
Driving	50
Working	43
Waiting for a red light	32

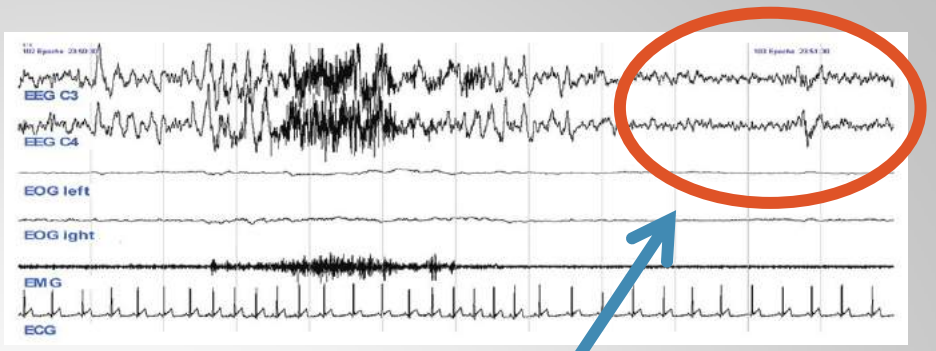
Afección cognitiva en la privación de sueño de 64 horas

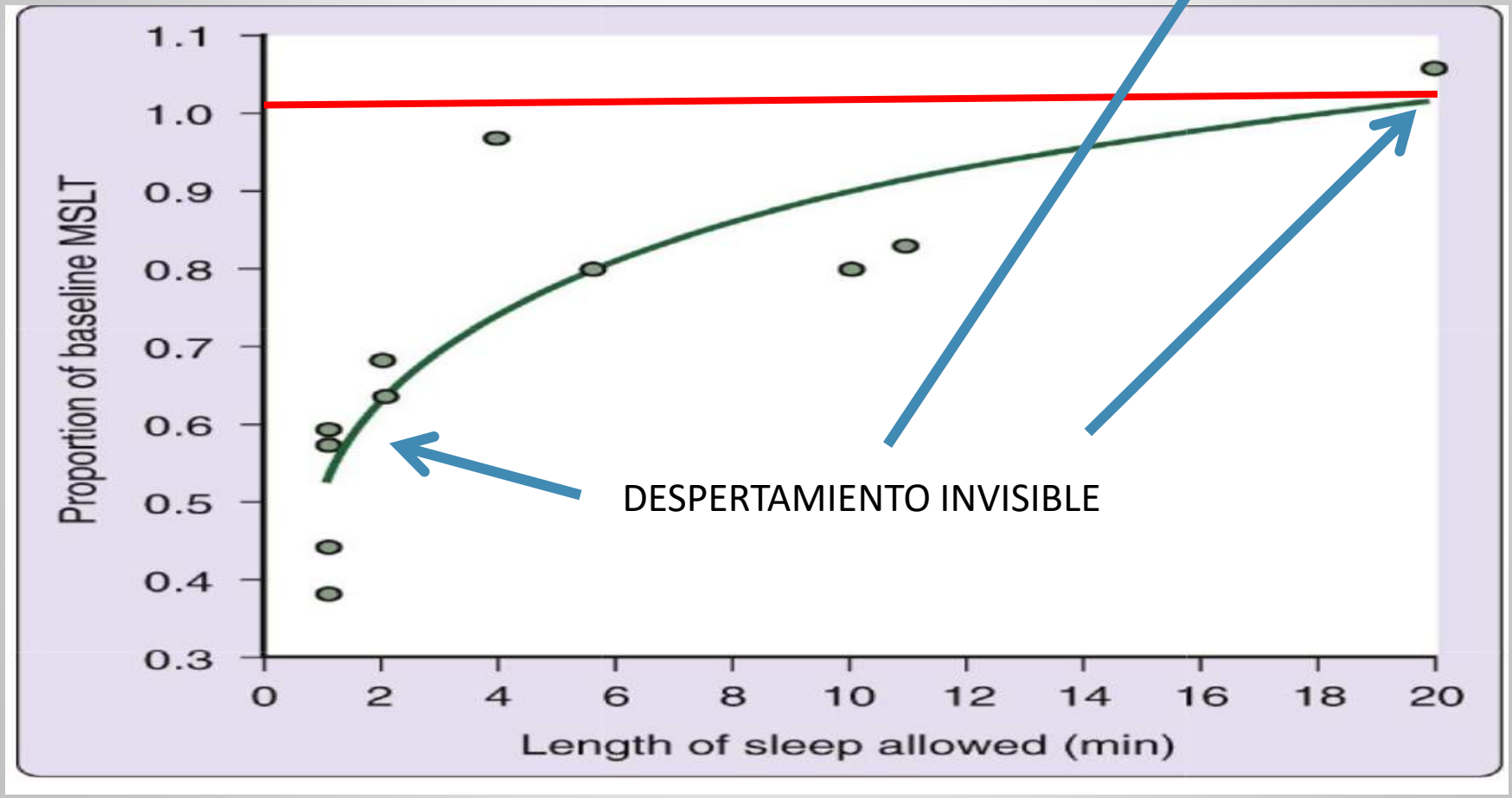




Redrawn from Dinges DF, Pack F, Williams K, et al. Cumulative sleepiness, mood disturbance, and psychomotor vigilance performance decrements during a week of sleep restricted to 4-5 hours per night. Sleep 1997;20:275.)

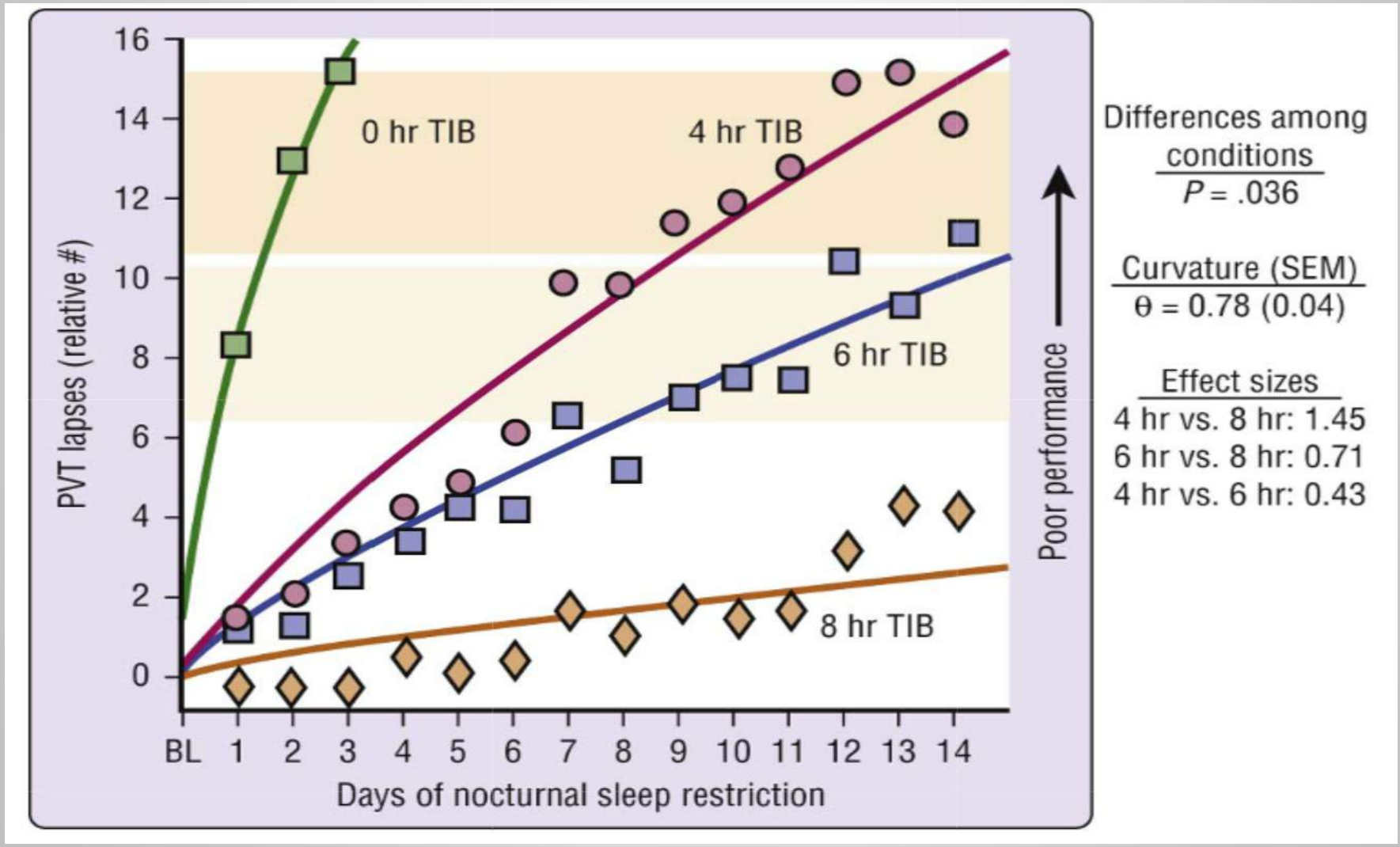
IMPACTO DE LA FRAGMENTACIÓN





Bonnet MH, Arand DL. Clinical effects of sleep fragmentation versus sleep deprivation. Sleep Med Rev 2003;7:297-310.

Efecto en la privación crónica de sueño

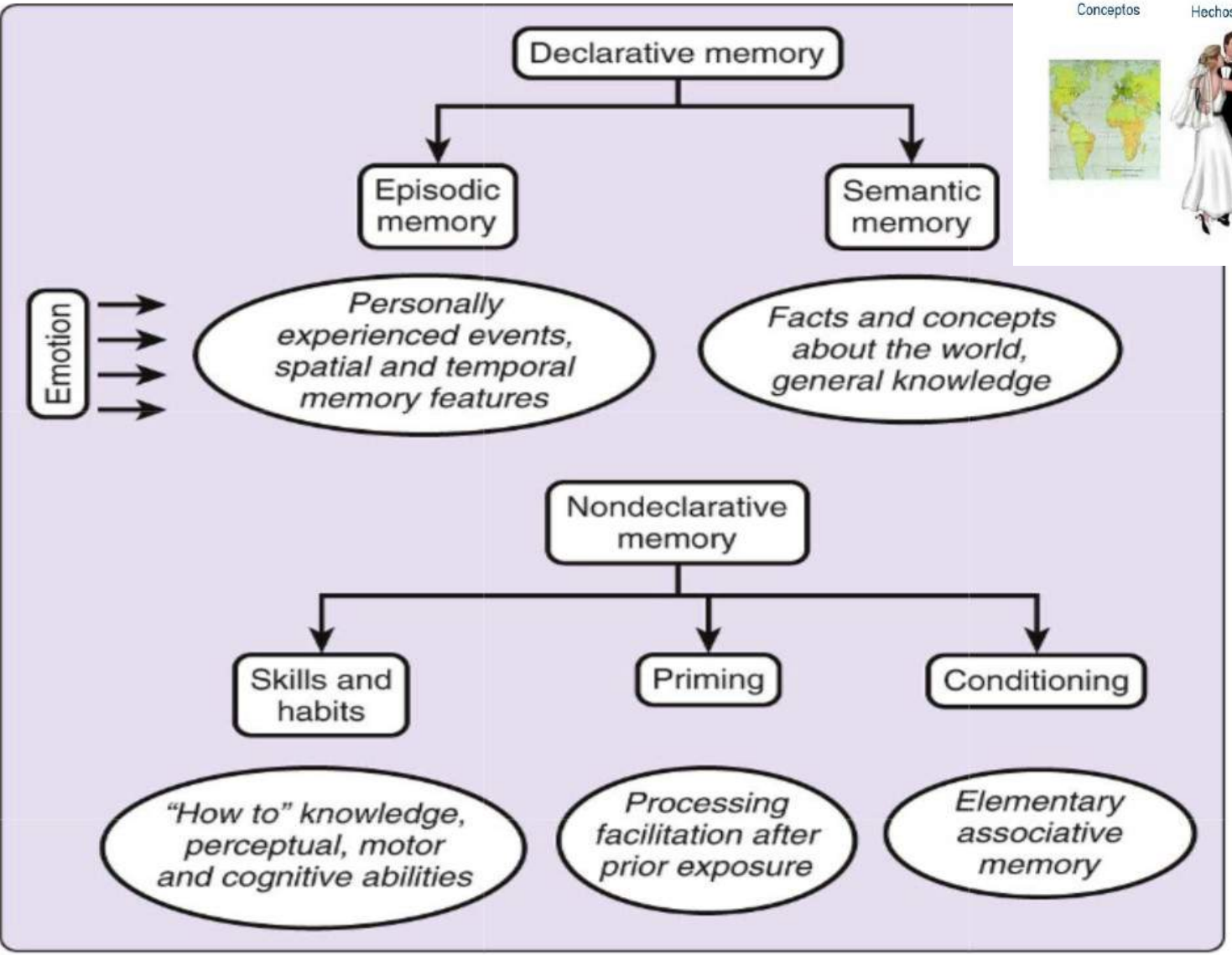


EL SUEÑO ESTA INVOLUCRADO EN:

VIGILACIA.	RESTRICCIÓN TIEMPO
ATENCION	RESTRICCIÓN DE TIEMPO
CONCENTRACION.	RESTRICCIÓN DE TIEMPO
ESTABILIDAD COGNITIVA.	PRIVACIÓN AGUDA y CRONICA
PODER RESTAURATIVO	FRAGMENTACIÓN

CI	Porcentaje de la población con este CI	Interpretación
> 130	2,1	Muy dotada
121-130	6,4	Dotada
111-120	15,7	Inteligencia por encima de la media
90-110	51,6	Inteligencia media
80-89	15,7	Inteligencia por debajo de la media
70-79	6,4	Retraso mental

MEMORIA Y SUEÑO



Squire LR: Memory systems of the brain: a brief history and current perspective. *Neuro biol Learn Mem.* 82:171-177 2004

DIFERENCIAS INFLUENCIAS EN LA MEMORIA EN SUEÑO

Effects of early and late nocturnal sleep on priming and spatial memory
Plihal, W.; Born, J. Vol. 36 Nr. 5 Página: 571 - 582

STUDY DESIGN

	2215-2300h	2300-0200h	0215-0300h	0300-0600h	0615-0700h
Sleep group					
Night A	Learning PRI CR MSR	early retention interval SLEEP	Recall PRI CR MSR		
Night B		Sleep	Learning PRI CR MSR	late retention interval SLEEP	Recall PRI CR MSR
Wake group					
Night A	Learning PRI CR MSR	early retention interval WAKEFULNESS	Recall PRI CR MSR		
Night B		Sleep	Learning PRI CR MSR	late retention interval WAKEFULNESS	Recall PRI CR MSR

MEMORIA Y FASES DE SUEÑO

Table 1. *Sleep Parameters*

Parameter	Sleep during early versus late retention interval: Sleep during early retention interval	Sleep during early versus late retention interval: Sleep during late retention interval	F•1, 10•
Sleep onset •min•	11.4• 5.1	24.7• 3.7	4.30†
Sleep time •min•	183.5• 8.3	172.6• 1.9	0.80
Wake %	2.1• 1.4	0.9• 0.3	0.78
S1 %	4.9• 0.8	6.9• 0.4	4.01†
S2 %	51.4• 2.7	54.4• 3.7	0.48
SWS %	33.6• 2.9	10.9• 8.3	30.23***
REM %	7.0• 1.9	26.8• 2.6	39.37***

MEMORIA DECLARATIVA

El sueño temprano dominado por NREM SWS facilita la consolidacion de la memoria declarativa

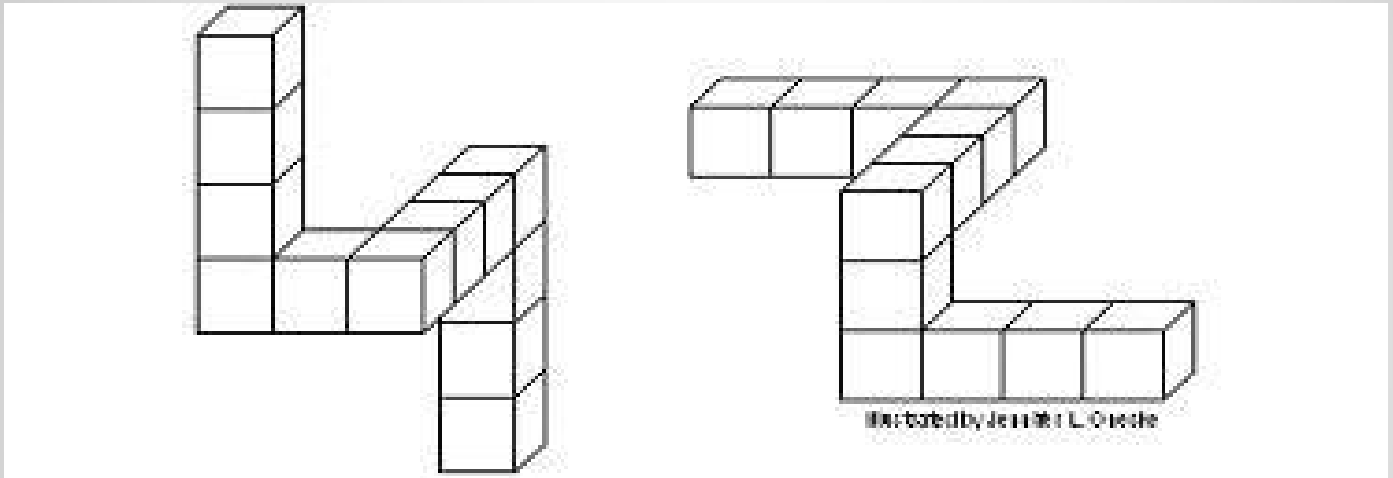


Figure 1: Based on Shepard & Metzlar's 'Mental Rotation Task'

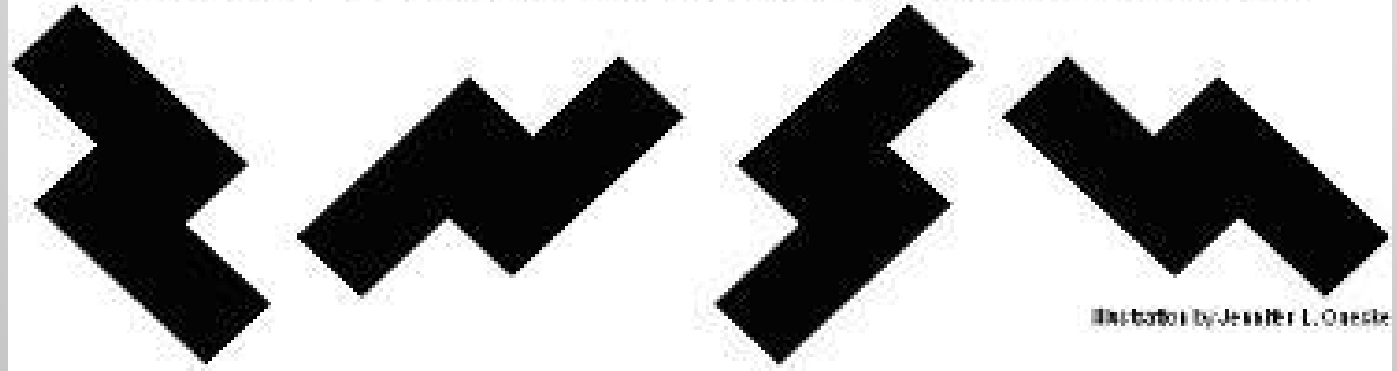
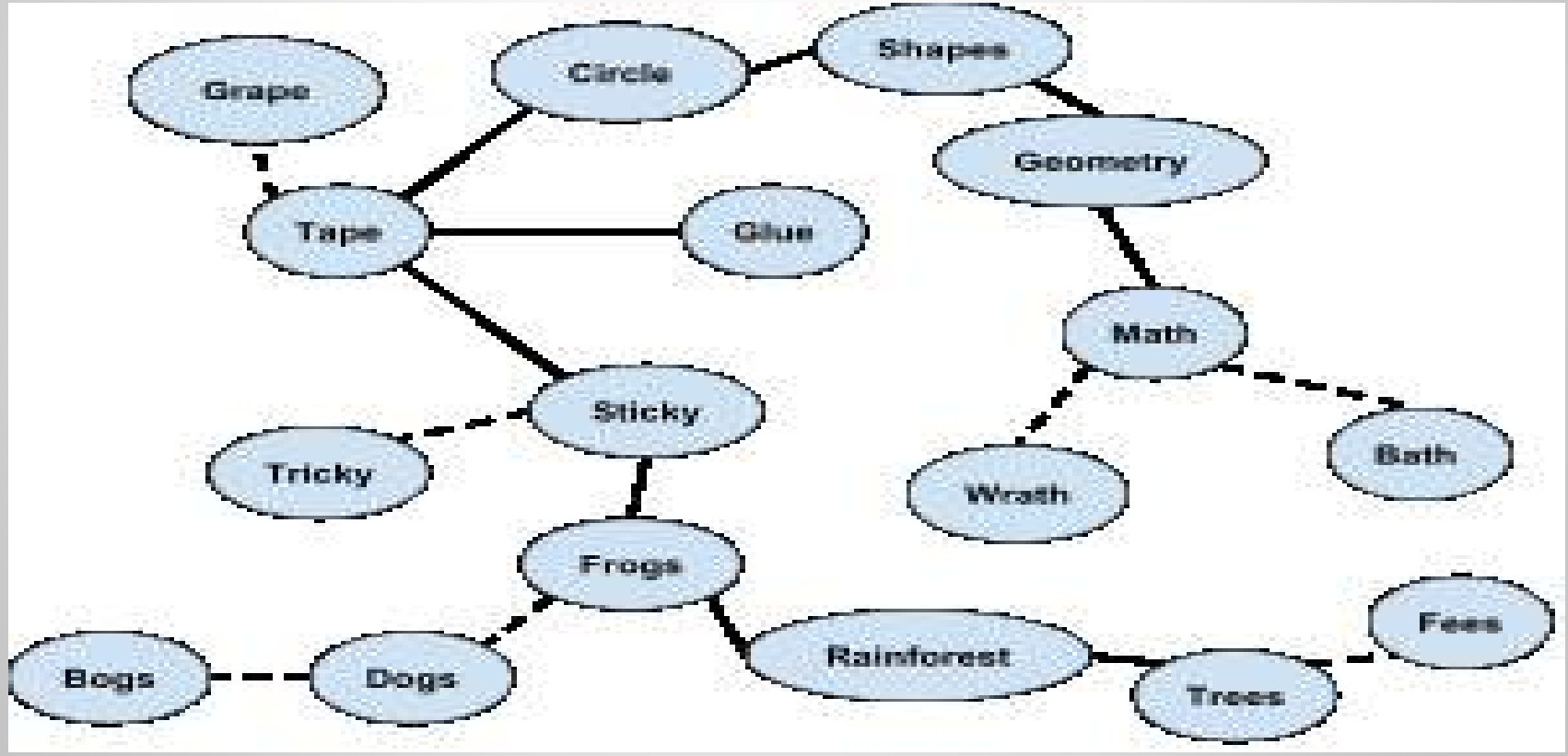


Figure 2: Mental Rotation Task Based on Canonical Orientations

Memoria no declarativa
El sueño tardío dominado por el REMS facilita la consolidación de la memoria "no declarativa"

- wordstem priming task



Sueño facilita la memoria

LEVEL 1

El SUEÑO TEMPRANO ES > NREM

LEVEL 2

EL SUEÑO TARDIO ES > REM

LEVEL 3

El SUEÑO TEMPRANO ES > NREM E INVOLUCRA LA CONSOLIDACION DE LA MEMORIA DECLARATIVA.

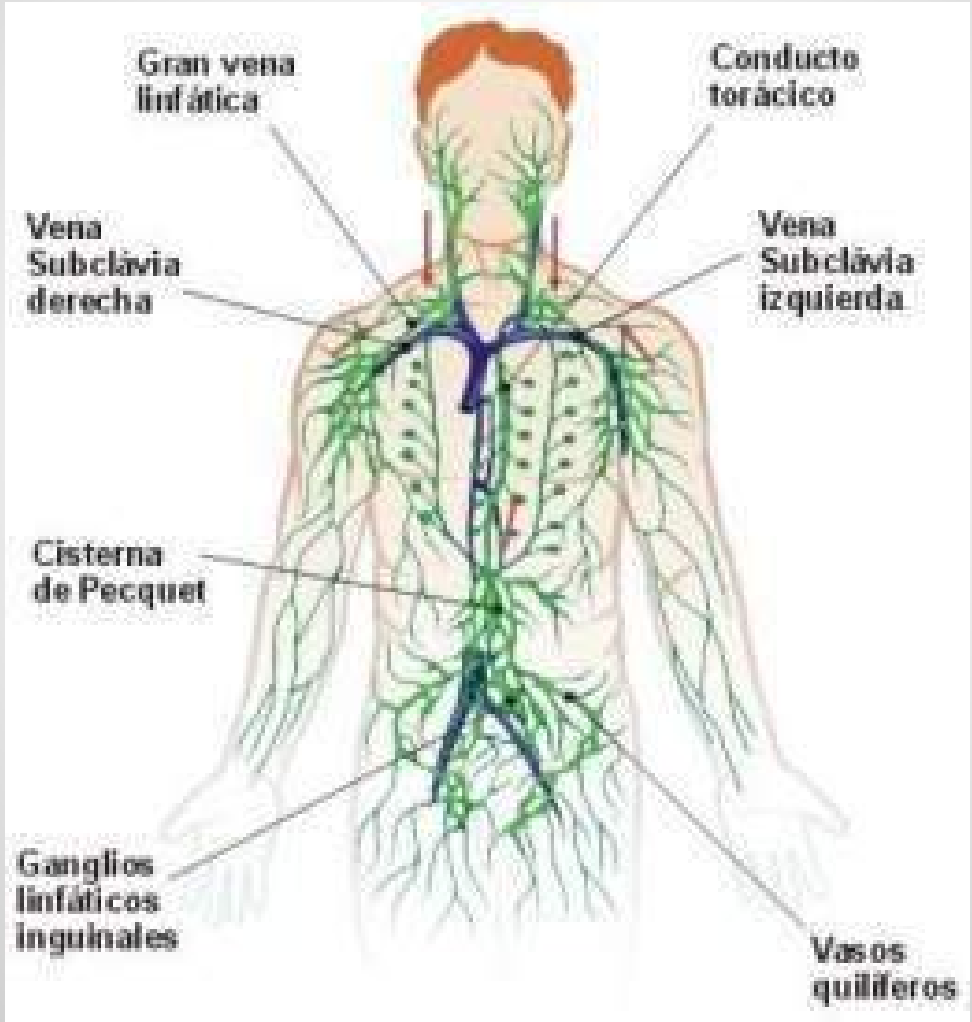
LEVEL 4

EL SUEÑO TARDIO ES > REM E INVOLUCRA LA MEMORIA LA CONSOLIDACION DE LA MEMORIA NO DECLARATIVA

LEVEL 5

EL INSOMNIO ACUMULA TOXICIDAD.

DRENAJE LINFATICO CORPORAL NO EXISTE EN EL CEREBRO



EL SUEÑO ES IMPORTANTE EN LA METABOLISMO DE ABB

SUEÑO VIGILIA

Nedergaard M (2013) Neuroscience. Garbage truck of the brain. Science 340: 1529–1530

INSOMNIO Y MARCADORES DE ALZHEIMER

PNAS PNAS

Check for updates

β-Amyloid accumulation in the human brain after one night of sleep deprivation

Ehsan Shokri-Kojori[a,1], Gene-Jack Wang[a,1], Corinde E. Wiers[a], Sukru B. Demiral[a], Min Guo[a], Sung Won Kim[a], Elsa Lindgren[a], Veronica Ramirez[a], Amna Zehra[a], Clara Freeman[a], Gregg Miller[a], Peter Manza[a], Tansha Srivastava[a], Susan De Santi[b], Dardo Tomasi[a], Helene Benveniste[c], and Nora D. Volkow[a,1]

[a]Laboratory of Neuroimaging, National Institute on Alcohol Abuse and Alcoholism, National Institutes of Health, Bethesda, MD 20892; [b]Piramal Pharma Inc., Boston, MA 02108; and [c]Department of Anesthesiology, Yale School of Medicine, New Haven, CT 06510

Edited by Michael E. Phelps, University of California, Los Angeles, CA, and approved March 13, 2018 (received for review December 14, 2017)

The effects of acute sleep deprivation on β-amyloid (Aβ) clearance in the human brain have not been documented. Here we used PET and ^{18}F-florbetaben to measure brain Aβ burden (ABB) in 20 healthy controls tested after a night of rested sleep (baseline) and after a night of sleep deprivation. We show that one night of sleep deprivation, relative to baseline, resulted in a significant increase in Aβ burden in the right hippocampus and thalamus. These increases were associated with mood worsening following sleep deprivation, but were not related to the genetic risk (APOE genotype) for Alzheimer's disease. Additionally, baseline ABB in a range of subcortical regions and the precuneus was inversely associated with reported night sleep hours. APOE genotyping was also linked to subcortical ABB, suggesting that different Alz-

of sleep to Aβ clearance from the brain and the regional specificity of such effects.

Here we evaluated the effects of one-night SD on ABB in healthy controls to investigate whether sleep affects clearance of Aβ from the human brain. For this purpose, we used positron emission tomography (PET) with which it is now possible to measure ABB in the living human brain. There are several validated PET radiotracers for this purpose, including ^{18}F-florbetaben (FBB) (22, 23). It is believed that such radiotracers predominantly bind to insoluble $A\beta_{42}$ plaques (24–27), but there is recent evidence that they also bind to soluble $A\beta_{42}$ forms (28). Thus, we reasoned that PET and FBB could be used

Cambios de la ABB por SUVr en SD vers RW

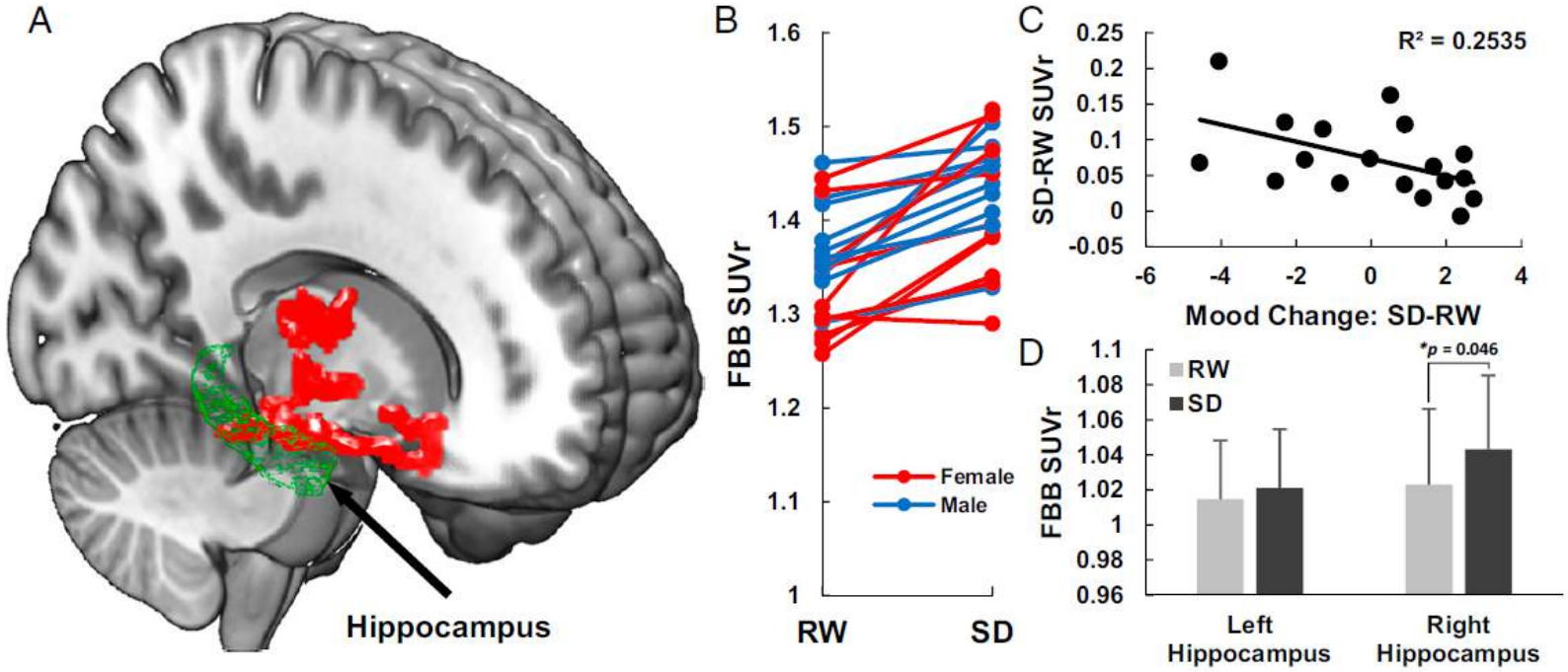
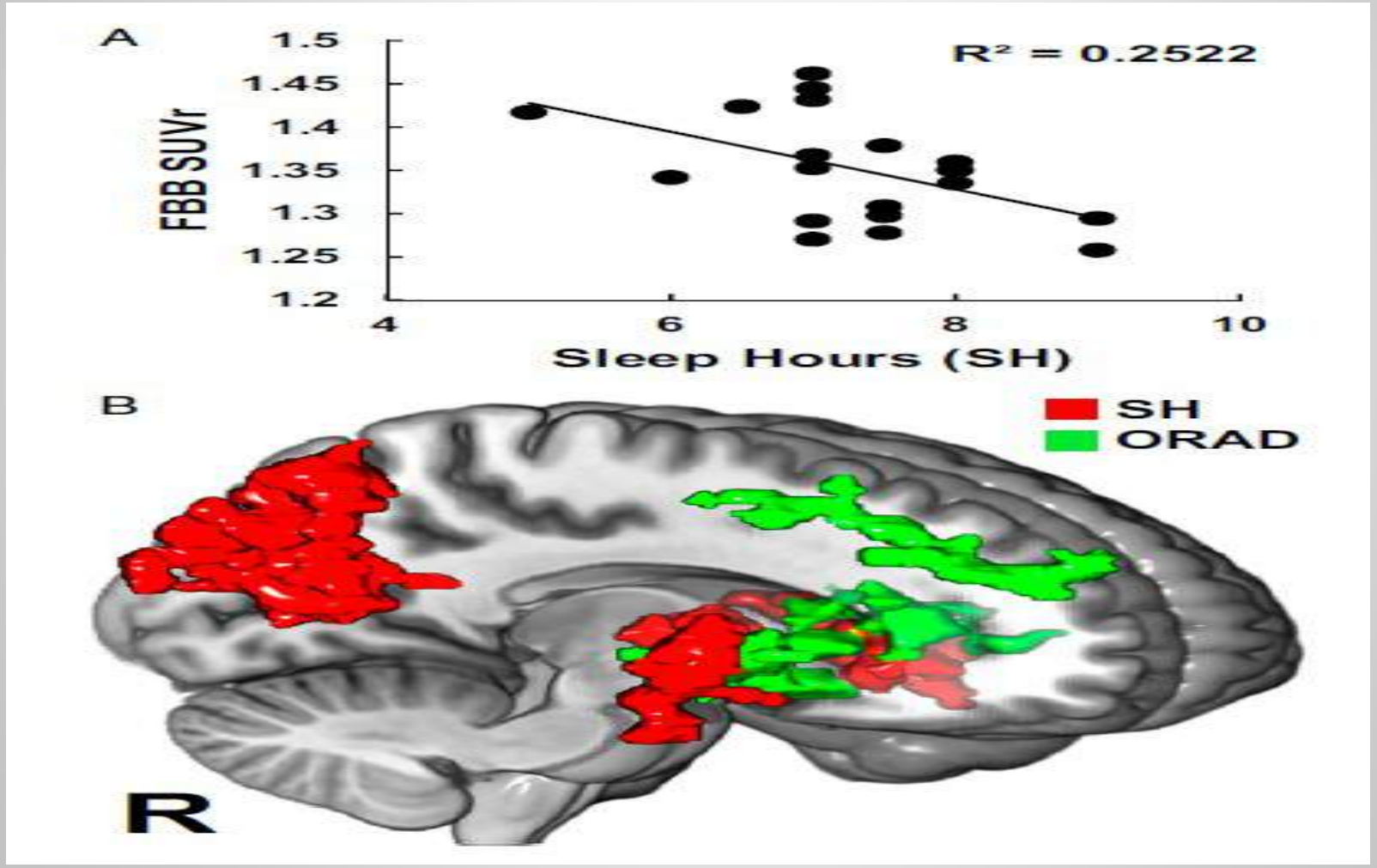


Fig. 1. Effects of one-night SD on ABB. (*A*) Voxelwise paired *t* test between RW and SD conditions highlighting the hippocampus as well as other subcortical structures ($P_{FWE} < 0.05$, cluster-size corrected) (Table S1). (*B*) Subject-level changes in FBB SUVr (in the red cluster identified in *A*) from RW to SD. There was no significant effect of gender, or gender × sleep interaction ($P > 0.15$). (*C*) Association between changes in mood from RW to SD and changes in the FBB SUVr for the cluster identified in *A*. Mood change was quantified using the principal component of the changes in self-report measures from RW to SD, which accounted for 35.5% of the variance. Self-report measures of alert, friendly, happy, social, and energetic significantly decreased, and measures of tired and difficulty staying awake significantly increased from RW to SD ($P < 0.001$, two-tailed) (see also Fig. S1). (*D*) Average FBB SUVr in a priori hippocampus ROIs across subjects. Error bars show standard deviation (*Methods*).

CLUSTER DE ACUMULACIÓN DE ABB en RW –A- SD y las SH



Sueño y la E. de Alzheimer

ABORDAJE DE LOS PROBLEMAS DE SUEÑO EN DEMENCIA

Valoracion o Tx	Detalle	Beneficio	Costo	Observacion
Clinica				
Historia	Sx y Sg Sx de desorden de sueño, co-morbilidades, Md, Sx de Demencia, valoracion de ansiedad y depresión		Consumo Tiempo	Info Pte y cuidadores

ABORDAJE DE LOS PROBLEMAS DE SUEÑO EN DEMENCIA

Valoracion o Tx	Detalle	Beneficio	Costo	Observacion
Clinica				
Escalas de sueño y cuestionarios	Epworth Quality Index, Insomnia Severy Index, etc Demencia: Inventario de disturbios de sueño, SCOPA Sleep Scale		Consumo Tiempo	Info Pte y cuidadores

Sharon Ooms. Treatment of sleep disorders in dementia
Curr Treat Options Neurol. 2016 September ; 18(9): 40

INITIAL VISIT PACKET NACC UNIFORM DATA SET (UDS) **LBD MODULE**

Form B8L: SCOPA Sleep — Participant

ADC name: _____ Subject ID: _ _ _ _ _ _ _ _ _ _ Form date: _ _ / _ _ / _ _ _ _

Visit #: _ _ _ Examiner's initials: _ _ _

INSTRUCTIONS: This form is to be completed by the participant. For additional clarification and examples, see LBD Module Coding Guidebook for Initial Visit Packet, Form B8L. Check only one box per question.

FOR CLINICIAN USE ONLY

0. Is the participant too cognitively impaired (e.g., CDR>1) to complete this form?

☐ 0 No **(CONTINUE TO ADMINISTER QUESTIONNAIRE)**

☐ 1 Yes **(END FORM HERE)**

PARTICIPANT INSTRUCTIONS

By means of this questionnaire, we would like to find out to what extent *in the past month* you have had problems with sleeping. Some of the questions are about problems with sleeping *at night*, such as, for example, not being able to fall asleep or not managing to sleep on. Another set of questions is about problems with sleeping *during the day*, such as dozing off (too) easily and having trouble staying awake.

First read these instructions before you answer the questions!

Place a cross in the box corresponding to the answer that best reflects your situation. If you wish to change an answer, fill in the "wrong" box and place a cross in the correct one. If you have been using sleeping tablets, then the answer should reflect how you have slept while taking these tablets.

Nighttime sleep				
In the past month, how often have you ...	**Not at all**	**A little**	**Quite a bit**	**A lot**
1. Had trouble falling asleep when you went to bed at night	☐ 0	☐ 1	☐ 2	☐ 3
2. Felt that you have woken too often	☐ 0	☐ 1	☐ 2	☐ 3
3. Felt that you have been lying awake for too long at night	☐ 0	☐ 1	☐ 2	☐ 3
4. Felt that you have woken too early in the morning	☐ 0	☐ 1	☐ 2	☐ 3
5. Felt you have had too little sleep at night	☐ 0	☐ 1	☐ 2	☐ 3

Subject ID: ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ Form date: ___ ___ / ___ ___ / ___ ___ ___ ___ Visit #: ___ ___ ___

Nighttime sleep, cont.

6. Overall, how well have you slept at night during the past month? (CHOOSE ONE):

- ☐ 1 Very well
- ☐ 2 Well
- ☐ 3 Rather well
- ☐ 4 Not well but not badly
- ☐ 5 Rather badly
- ☐ 6 Badly
- ☐ 7 Very badly

Daytime sleepiness

In the past month, how often have you ...	Never	Sometimes	Regularly	Often
7. Fallen asleep unexpectedly during the day or in the evening	☐ 0	☐ 1	☐ 2	☐ 3
8. Fallen asleep while sitting peacefully	☐ 0	☐ 1	☐ 2	☐ 3
9. Fallen asleep while watching TV or reading	☐ 0	☐ 1	☐ 2	☐ 3
10. Fallen asleep while talking to someone	☐ 0	☐ 1	☐ 2	☐ 3
11. Had trouble staying awake during the day or in the evening	☐ 0	☐ 1	☐ 2	☐ 3
12. Experienced falling asleep during the day as a problem	☐ 0	☐ 1	☐ 2	☐ 3

ABORDAJE DE LOS PROBLEMAS DE SUEÑO EN DEMENCIA

Valoracion o Tx	Detalle	Beneficio	Costo	Observacion
Clinica				
Actigrafia	Toma dias o semanas	No invasivo, Accesible	No reembosable por seguros	Util para tener info de Log Respuesta a tratamiento

Sharon Ooms. Treatment of sleep disorders in dementia
Curr Treat Options Neurol. 2016 September ; 18(9): 40

World Journal of Otorhinolaryngology-Head and Neck Surgery (2016) 2, 45–49

Available online at www.sciencedirect.com

ScienceDirect

journal homepage: www.keaipublishing.com/WJOHNS; www.wjent.org

REVIEW ARTICLE

Overview of smartphone applications for sleep analysis

Adrian A. Ong*, M. Boyd Gillespie

Medical University of South Carolina, Department of Otolaryngology – Head and Neck Surgery, Charleston, SC, USA

Received 25 August 2015; received in revised form 8 February 2016; accepted 15 February 2016
Available online 5 March 2016

Table 1 Number of apps by feature offered.

	Mobile app store	
	iOS	Android
Sleep Structure		
Duration	33 (100%)	27 (100%)
Awake	23 (70%)	20 (74%)
Light Sleep	21 (64%)	21 (78%)
Deep Sleep	23 (70%)	21 (78%)
REM	6 (18%)	7 (11%)
Sleep Efficiency	15 (45%)	19 (70%)
Sleep Debt	3 (9%)	7 (11%)
Extra Features		
Movement Tracker	8 (24%)	3 (11%)
Sound Recorder	15 (45%)	7 (11%)
Smart Alarm	24 (73%)	15 (56%)
Sleep Aid	9 (27%)	8 (30%)
Notes	12 (36%)	17 (63%)
Heart Rate Monitor	6 (18%)	1 (4%)
Apple Health	11 (33%)	N/A

REM (rapid eye movement).

Table 2 Ten most popular apps for iOS and android by number of user reviews.

App name	Platform	Cost $	Rating	No. reviews	Developer
Absalt EasyWakeup Classic	iOS	$4.99	4	408	FreeTerra
Absalt EasyWakeup Pro	iOS	$9.99	4.5	990	FreeTerra
Good Night's Sleep Alarm	Android	$0.00	4.1	7736	Ateam Inc.
MotionX 24/7	iOS	$0.99	4.5	2263	MotionX
Sleep Analyzer	Android	$0.00	3.1	2072	A1 Brains Infotech
Sleep As Android	Android	$0.00	4.3	179,626	Urbanoid Team
Sleep as Android Unlock	Android	$4.49	4.5	16,637	Urbanoid Team
Sleep Better	iOS	$0.00	4	788	Runtastic
	Android	$0.00	4	60,021	
SleepBot	iOS	$0.00	4	1020	SleepBot
	Android	$0.00	4	44,626	
Sleep Cycle	iOS	$1.99	4.5	75,932	Northcube AB
	Android	$1.69	4.5	11,547	
Sleep Time	iOS	$0.00	4.5	4775	Azumio
	Android	$0.00	4	18,881	
Sleep Time+	iOS	$1.99	4.5	7240	Azumio
Smart Alarm Clock	iOS	$1.99	4	3716	Plus Sports
	Android	$0.00	3.9	27,165	
Smart Sleep Manager	iOS	$0.00	N/A	N/A	株式会社C2
	Android	$0.00	4.1	7418	

SLEEP PULSE 3

Segunda parte

ABORDAJE DE LOS PROBLEMAS DE SUEÑO EN DEMENCIA

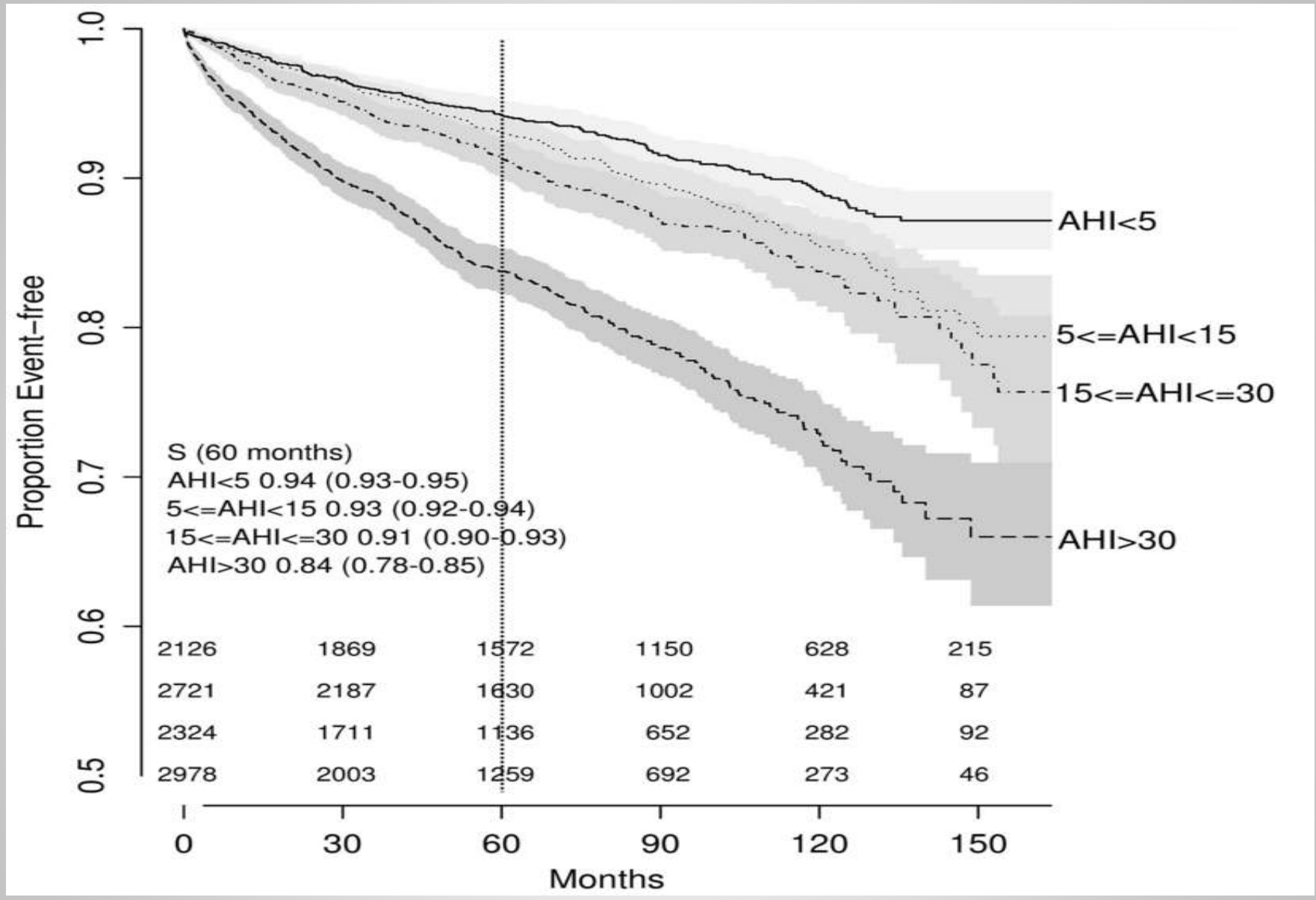
Valoracion o Tx	Detalle	Beneficio	limitaciones	Observacion
PLGS	OSA, CSA, PLMS, RLS, RBD	Goldstandard	Incoveniente en demencia avanzada, confusión, artefectos	Necesitan del cuidador al lado, intolerancia al CPAP, Dx fallidos

- **Sharon Ooms. Treatment of sleep disorders in dementia**
- Curr Treat Options Neurol. 2016 September ; 18(9): 40

ABORDAJE DE LOS PROBLEMAS DE SUEÑO EN DEMENCIA

Tx de comorbilidades	Detalle	Beneficio	limitaciones	Observacion
OSA, CSA	CPAP, Bi-PAP ASV	Enlentece del declive cognitivo, Mejora la somnolencia diurna	Importante intolerancia al CPAP Fatiga de cuidador	Comun en AD, VD, No datos de no tratar

Sharon Ooms. Treatment of sleep disorders in dementia
Curr Treat Options Neurol. 2016 September ; 18(9): 40



Tetyana KendzerskaObstructive Sleep Apnea and Risk of Cardiovascular Events and All-Cause Mortality: A Decade-Long Historical Cohort Study. PLoS Medicine 11(2):e1001599 · February 2014 *with* 305 Reads DOI: 10.1371/journal.pmed.1001599

Annals of Internal Medicine | ARTICLE

Treatment with Continuous Positive Airway Pressure Is Not Effective in Patients with Sleep Apnea but No Daytime Sleepiness

A Randomized, Controlled Trial

Ferran Barbé, MD; Lola R. Mayoralas, PhD; Joaquin Duran, MD; Juan F. Masa, MD; Andreu Maimó, MD; Josep M. Montserrat, MD; Carmen Monasterio, MD; Margalida Bosch, RN; Antoni Ladaria, MD; Manuela Rubio, MD; Ramon Rubio, MD; Magdalena Medinas, PhD; Lourdes Hernandez, MD; Silvia Vidal, MD; Neil J. Douglas, MD; and Alvar G.N. Agustí, MD

Background: The sleep apnea–hypopnea syndrome is defined by a pathologic number of respiratory events during sleep (the apnea–hypopnea index, defined as the number of apnea and hypopnea episodes per hour) and daytime symptoms (mostly, excessive sleepiness). In patients with the sleep apnea syndrome, treatment with continuous positive airway pressure (CPAP) normalizes both the apnea–hypopnea index and diurnal symptoms. However, the effect of CPAP in persons with a pathologic apnea–hypopnea index without daytime sleepiness is unclear.

Objective: To investigate the short-term effects of CPAP on quality of life, objective sleepiness, cognitive function, and arterial blood pressure in nonsleepy patients with a pathologic apnea–hypopnea index.

Design: Multicenter randomized, placebo-controlled, parallel-group study.

Setting: Six teaching hospitals in Spain.

Patients: 55 patients with an apnea–hypopnea index of 30 or greater who did not have daytime sleepiness (Epworth Sleepiness Scale score ≤ 10).

Intervention: Patients were randomly assigned to receive optimal ($n = 29$) or sham ($n = 25$) CPAP and were observed for 6 weeks.

Measurements: Quality of life, objective sleepiness (Multiple Sleep Latency Test score), cognitive function, and arterial blood pressure.

Results: The intervention and control groups were similar in terms of mean (±SE) age (54 ± 2 vs. 52 ± 2 years), apnea–hypopnea index (54 ± 3 vs. 57 ± 4), Epworth Sleepiness Scale score (7.0 ± 0.4 vs. 7.0 ± 0.4) and adherence to CPAP treatment (5.0 ± 0.4 vs. 4.0 ± 0.5 hours/d). Other variables, such as quality of life, cognitive function, and arterial blood pressure, were also similar in both groups before treatment. After 6 weeks of CPAP or sham CPAP, none of these variables changed significantly.

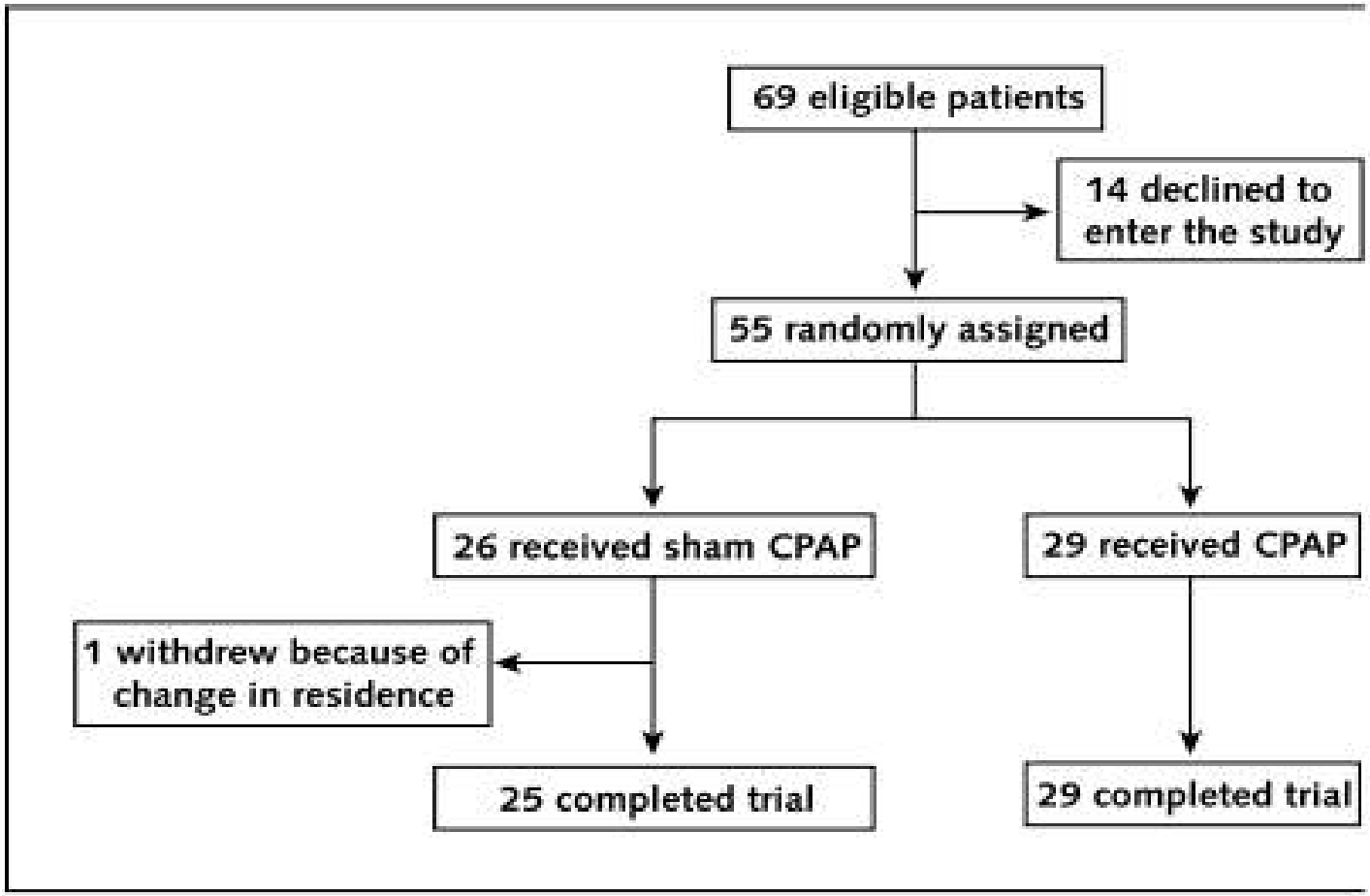
Conclusion: In patients with an apnea–hypopnea index of 30 or greater and no subjective daytime sleepiness, CPAP does not modify quality of life, objective sleepiness, vigilance, attention, memory, information processing, visuomotor coordination, or arterial blood pressure. Treatment with CPAP is therefore not indicated in nonsleepy patients with a pathologic apnea–hypopnea index.

Ann Intern Med. 2001;134:1015-1023. www.annals.org

For author affiliations, current addresses, and contributions, see end of text.

See editorial comment on pp 1065-1067.

Figure 1. **Trial design.**



CPAP = continuous positive airway pressure.

Table 1. Anthropometric Data at Baseline in Study Participants*

Characteristic	CPAP Group ($n = 29$)	Sham CPAP Group ($n = 25$)
Age, *y*	54 ± 2	52 ± 2
Women, *n*	3	2
Body mass index, kg/m^2	29 ± 1	29 ± 0.4
Apnea index†	30 ± 4	34 ± 5
Apnea–hypopnea index†	54 ± 3	57 ± 4
Arousal index†	44 ± 3	49 ± 4
Adherence to therapy, *h/d*	5 ± 0.4	4 ± 0.5
CPAP pressure, *cm* H_2O	8 ± 0.2	–
Alcohol consumption, *g/d*		
Daily	11 ± 4	17 ± 4
Weekends	19 ± 4	25 ± 5

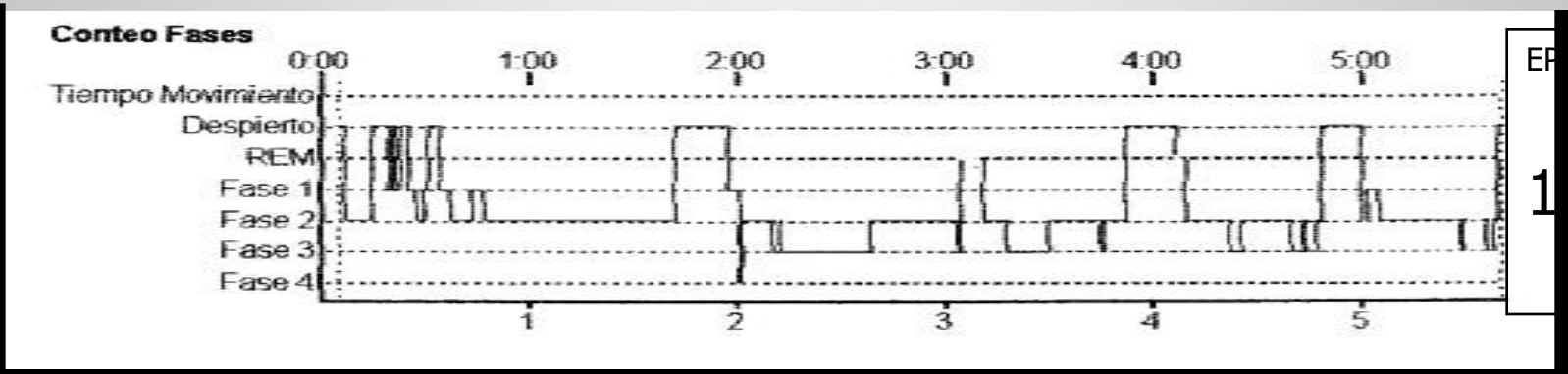
* Unless otherwise indicated, data are the mean ± SE. CPAP = continuous positive airway pressure.
† Number of events per hour.

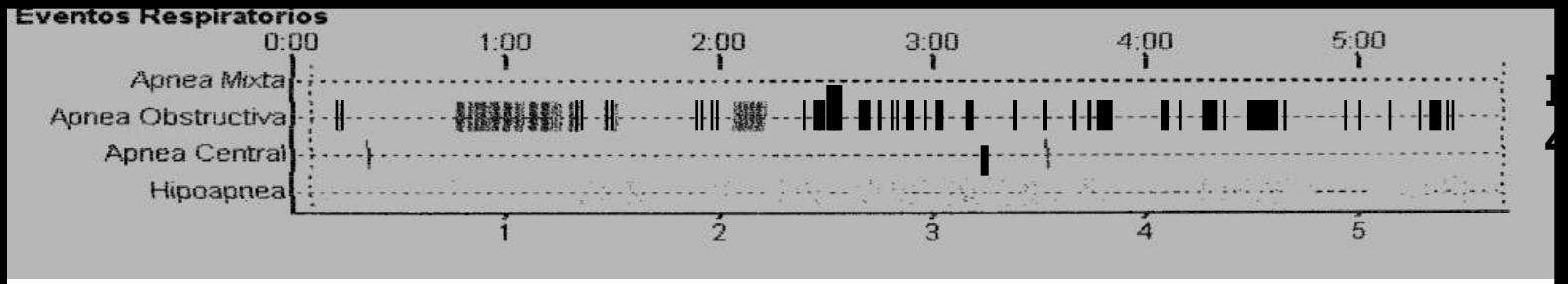
Table 2. **Quality of Life, Daytime Sleepiness, and Results on Psychological Tests before and after 6 Weeks of Treatment***

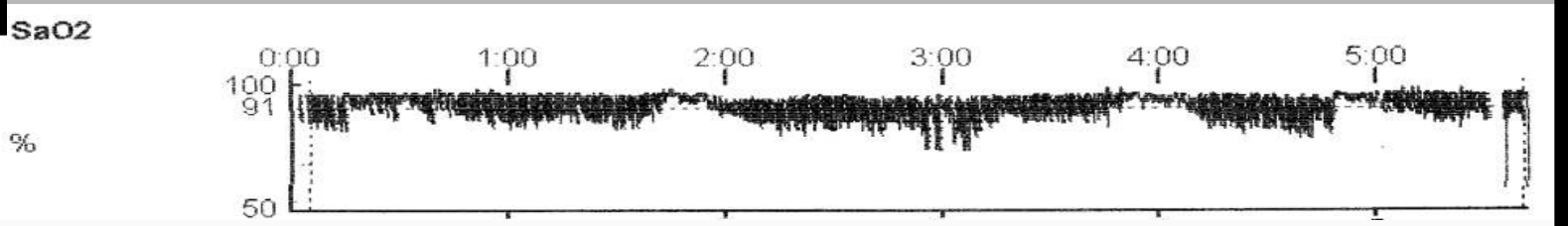
Measure	CPAP		
	Before	After	Difference
SF-36			
PCS score	49 ± 1 (46 to 51)	51 ± 1 (49 to 53)	2 ± 1 (0 to 5)
MCS score	51 ± 2 (48 to 55)	51 ± 2 (47 to 54)	−1 ± 2 (−4 to 2)
FOSQ score	102 ± 3 (95 to 108)	108 ± 2 (104 to 113)	7 ± 2 (2 to 12)
Epworth Sleepiness Scale score	7 ± 0.4 (6 to 8)	8 ± 0.6 (7 to 10)	1 ± 1 (0 to 2)
MSLT score, *min*	12 ± 1 (9 to 14)	13 ± 1 (11 to 15)	1 ± 1 (−1 to 3)
Hits on Steer-Clear test, %	5 ± 1 (2 to 7)	4 ± 1 (2 to 5)	−1 ± 1 (−3 to 0)
Wechsler Adult Intelligence Scale			
Digit symbols	42 ± 2 (37 to 47)	43 ± 3 (38 to 48)	1 ± 1 (−1 to 3)
Block design	33 ± 1 (30 to 36)	34 ± 1 (31 to 36)	1 ± 1 (−1 to 3)
Digit span	9 ± 0.3 (8 to 10)	9 ± 0.3 (8 to 10)	0 ± 0.3 (−1 to 1)
PASAT 1	15 ± 1 (14 to 16)	15 ± 1 (13 to 17)	0 ± 1 (−2 to 1)
PASAT 2	14 ± 1 (12 to 16)	16 ± 1 (14 to 17)	2 ± 1 (1 to 3)
PASAT 3	10 ± 1 (8 to 12)	12 ± 1 (11 to 14)	2 ± 1 (1 to 3)
PASAT 4	5 ± 1 (3 to 6)	5 ± 1 (4 to 7)	1 ± 0.4 (0 to 1)
Trail making test, *s*			
Part A	49 ± 4 (41 to 56)	47 ± 3 (41 to 53)	−2 ± 2 (−7 to 3)
Part B	122 ± 16 (89 to 155)	96 ± 6 (83 to 109)	−27 ± 14 (−55 to 2)
Wechsler Memory Scale			
Mental control	6 ± 0.4 (5 to 6)	6 ± 0.4 (5 to 7)	0 ± 0.3 (−1 to 1)
Verbal paired associated	14 ± 1 (12 to 16)	15 ± 1 (14 to 17)	1 ± 1 (0 to 3)

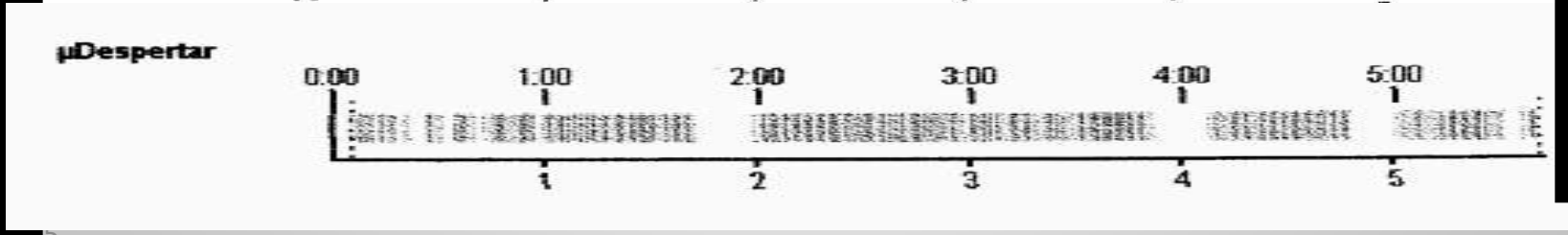
* Data are shown as the mean ± SE (95% CI). CPAP = continuous positive airway pressure; FOSQ = Functional Outcomes of Sleep Questionnaire; MCS = mental component summary; MSLT = Multiple Sleep Latency Test; PASAT = Paced Auditory Serial Addition Test; PCS = physical component summary; SF-36 = Medical Outcomes Study 36-Item Short-Form Health Survey.

PTE 1. ESTUDIO BASAL









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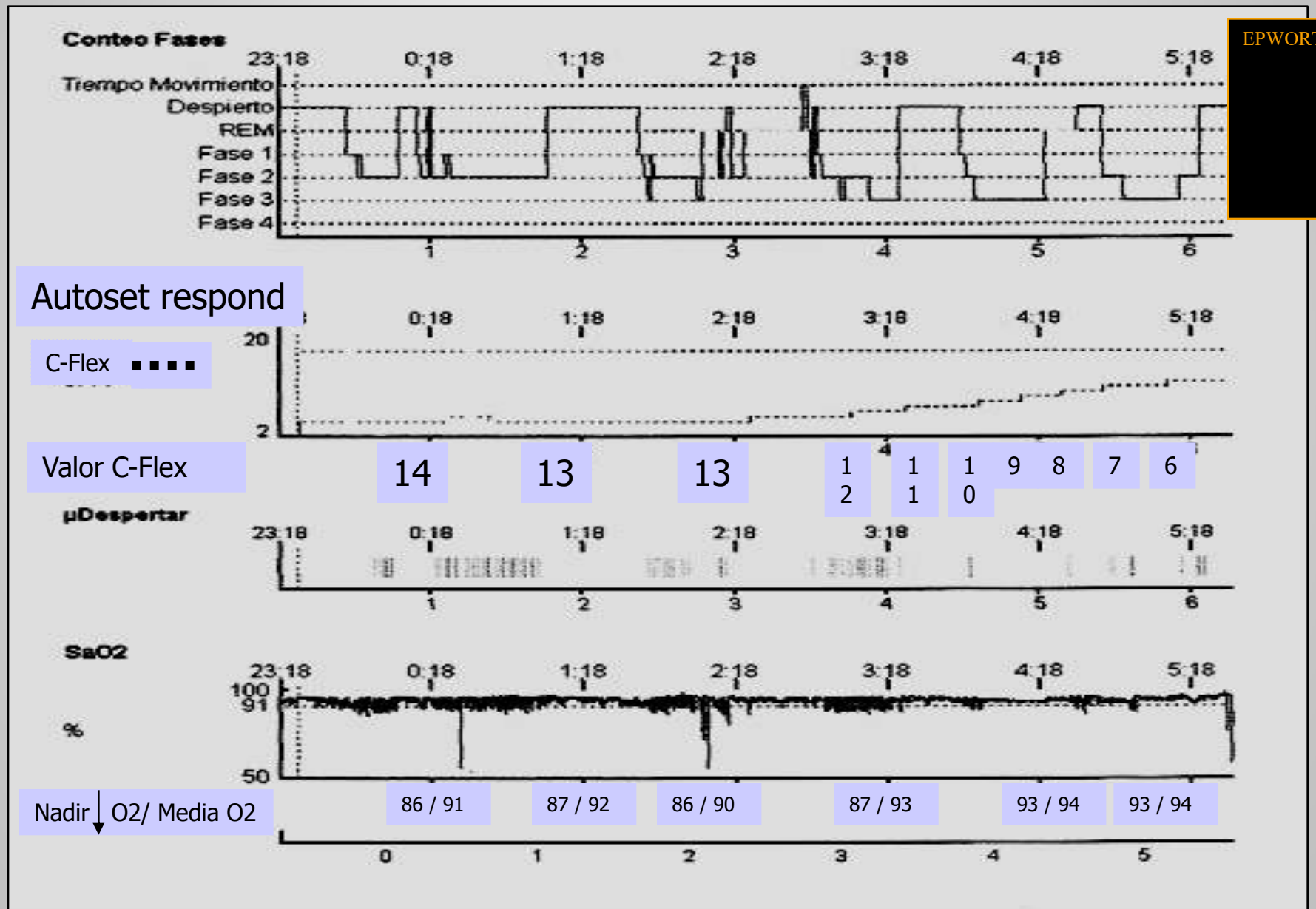

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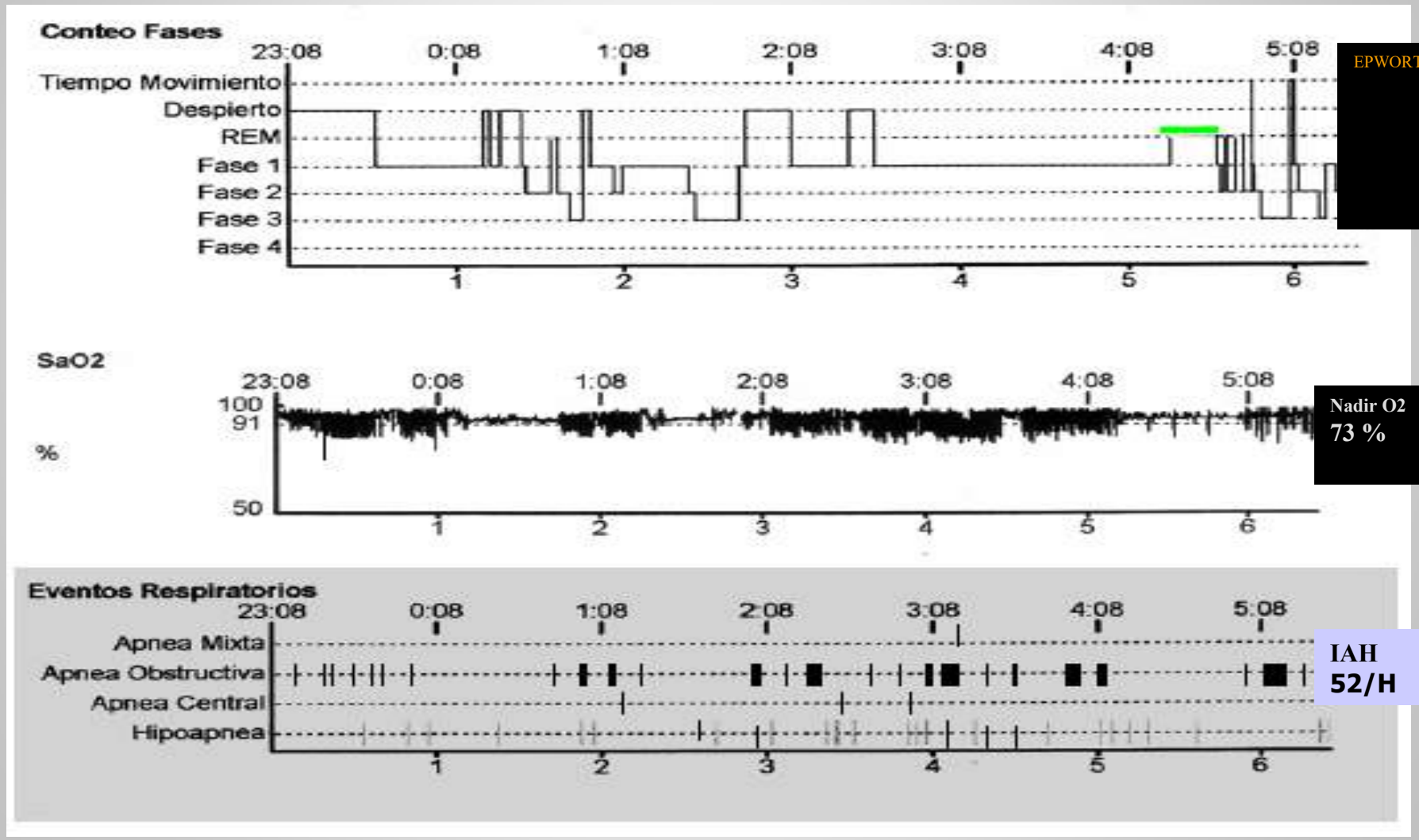

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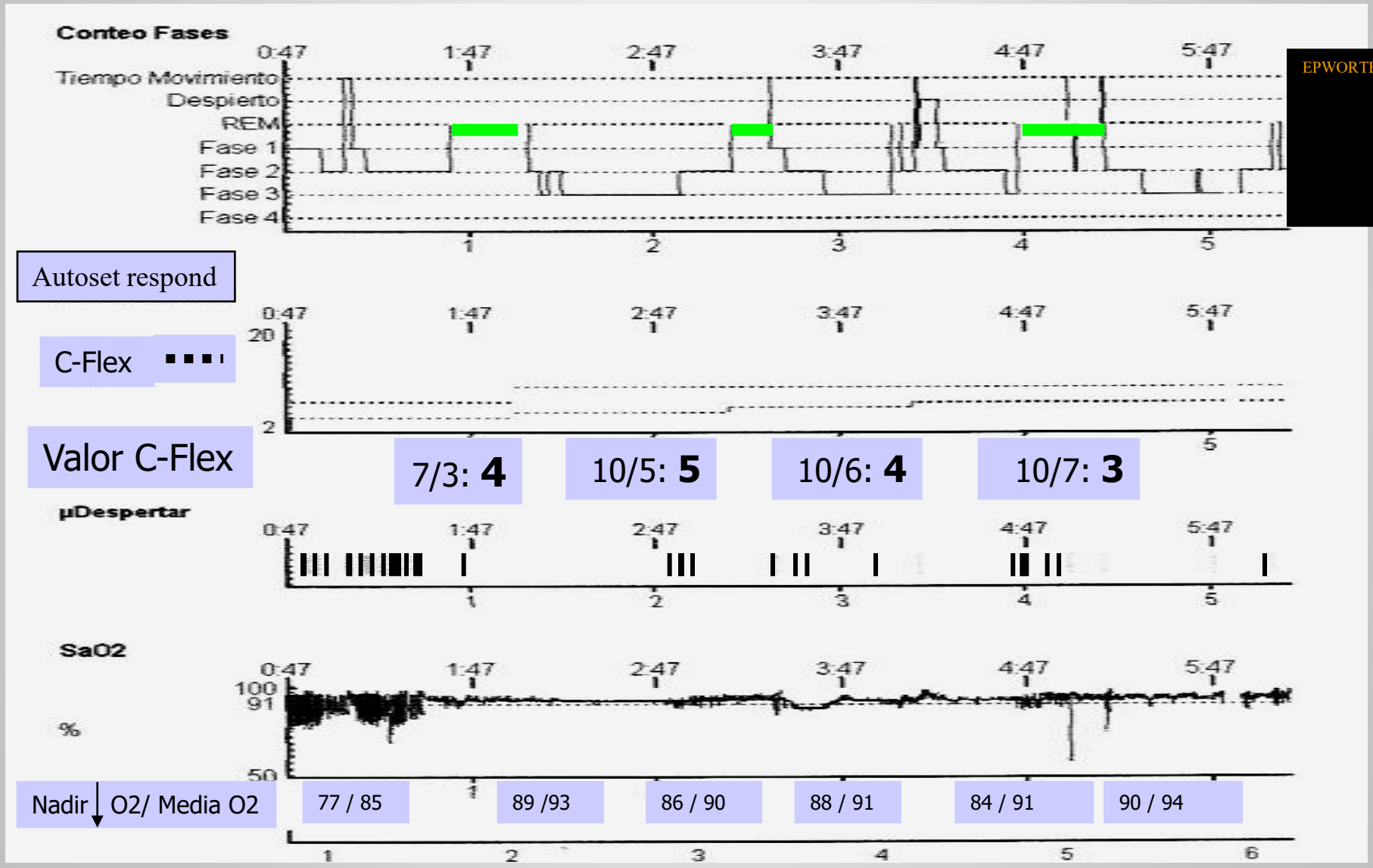
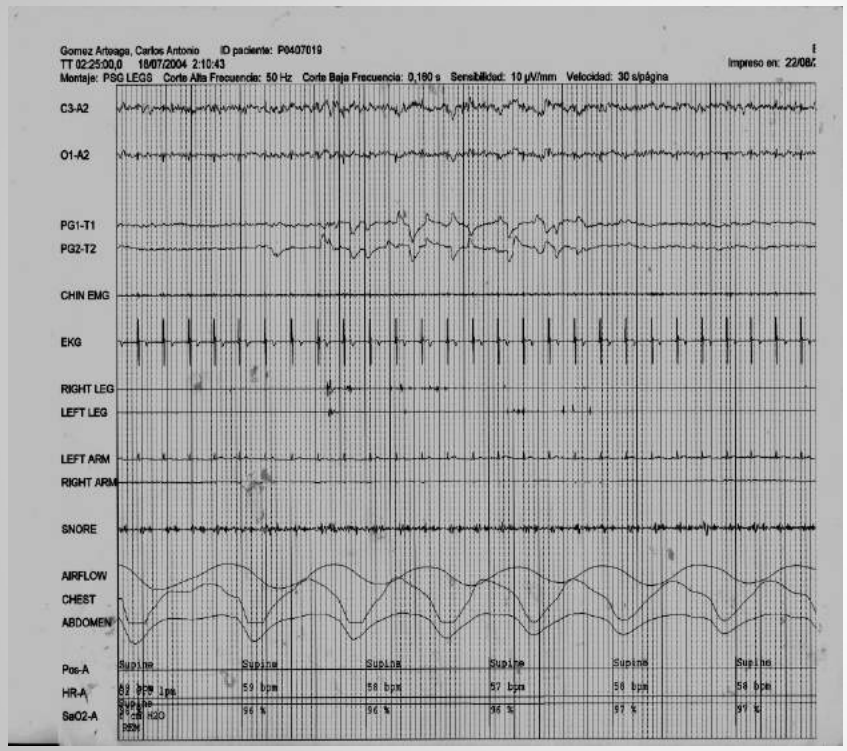
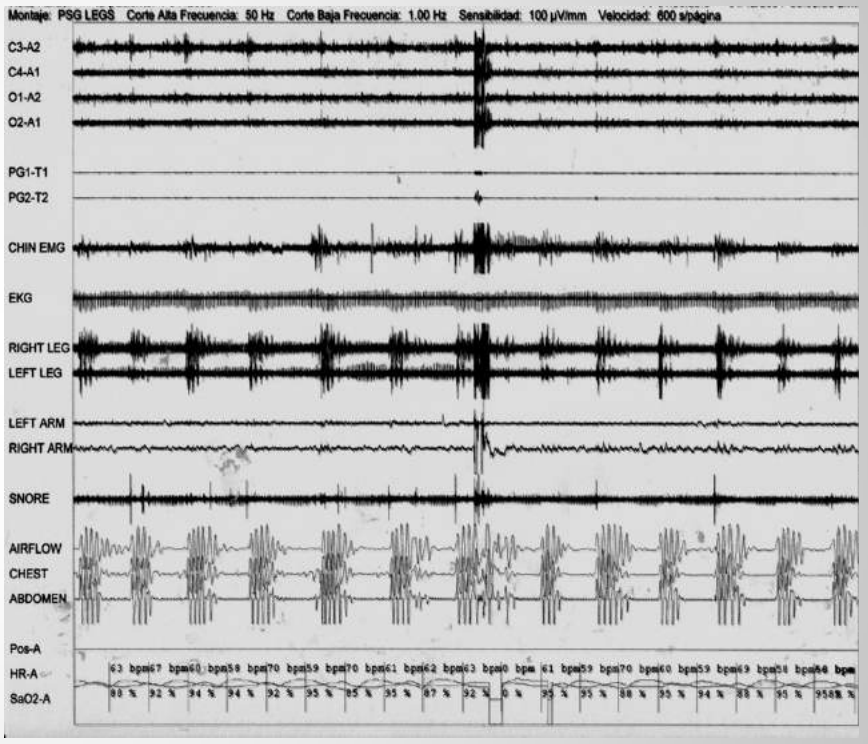


APNEA CENTRAL DE SUEÑO





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VPAP™ Tx Lab System

Overnight success

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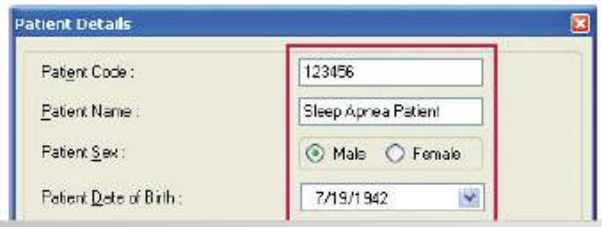
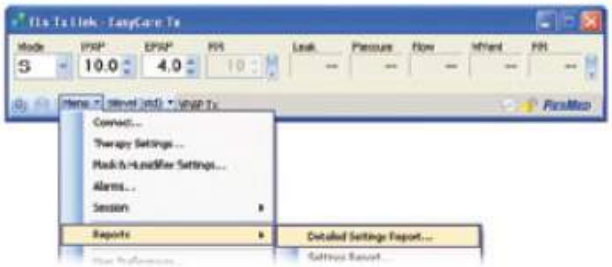
BiPAP –Sleep Lab

a. From the **Menu** drop-down, select **Session > Record**

b. Populate the patient details in the pop-up window and click **Browse** to pull up the "Save Session Data" dialog box



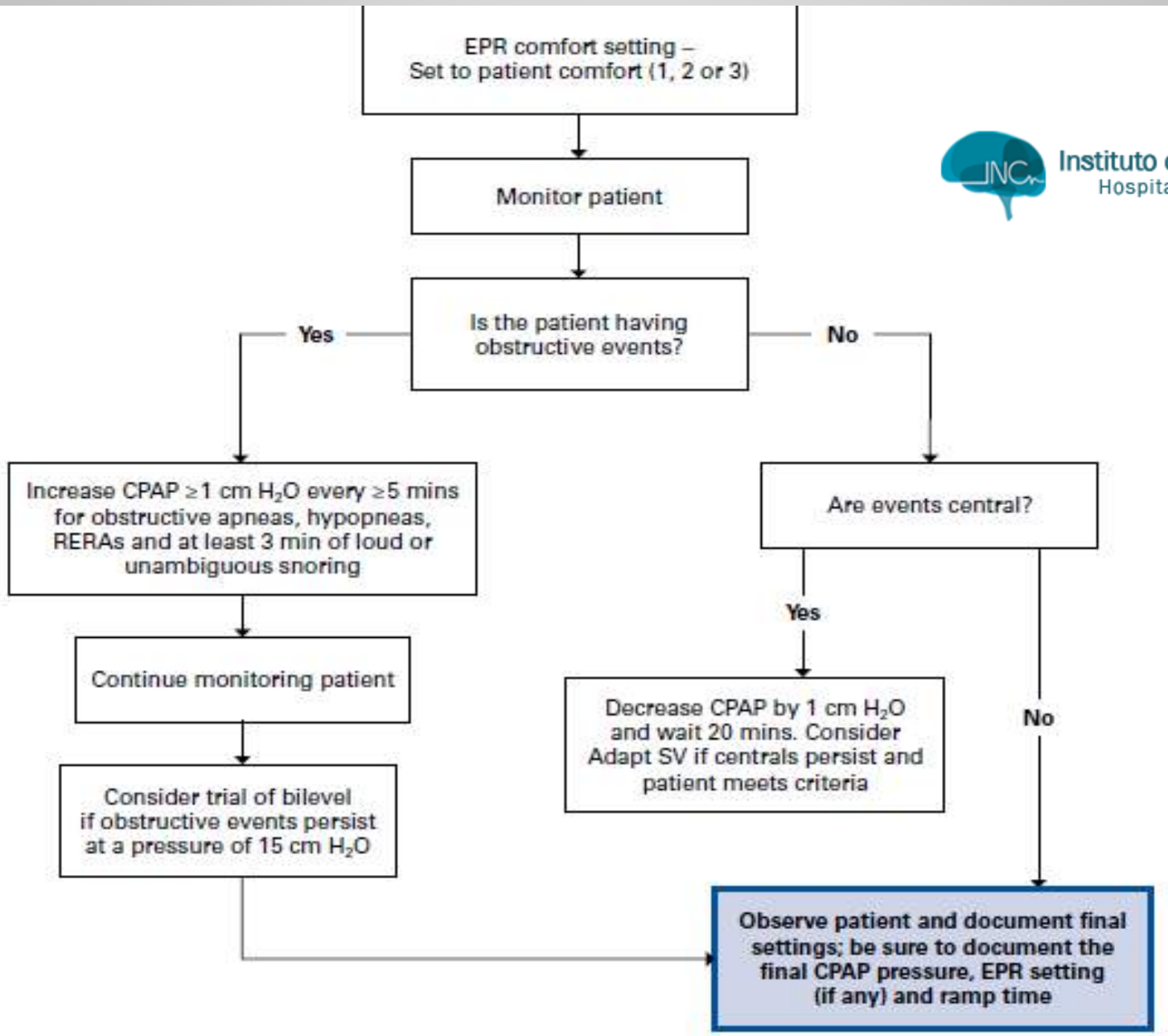
a. From the **Menu** drop-down, select **Reports > Detailed Settings Report**



b. Click **Browse** and select the saved patient file

c. Click **Open**, and click **OK** to display the report

d. Click the **Print** icon to print the report



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ResMed

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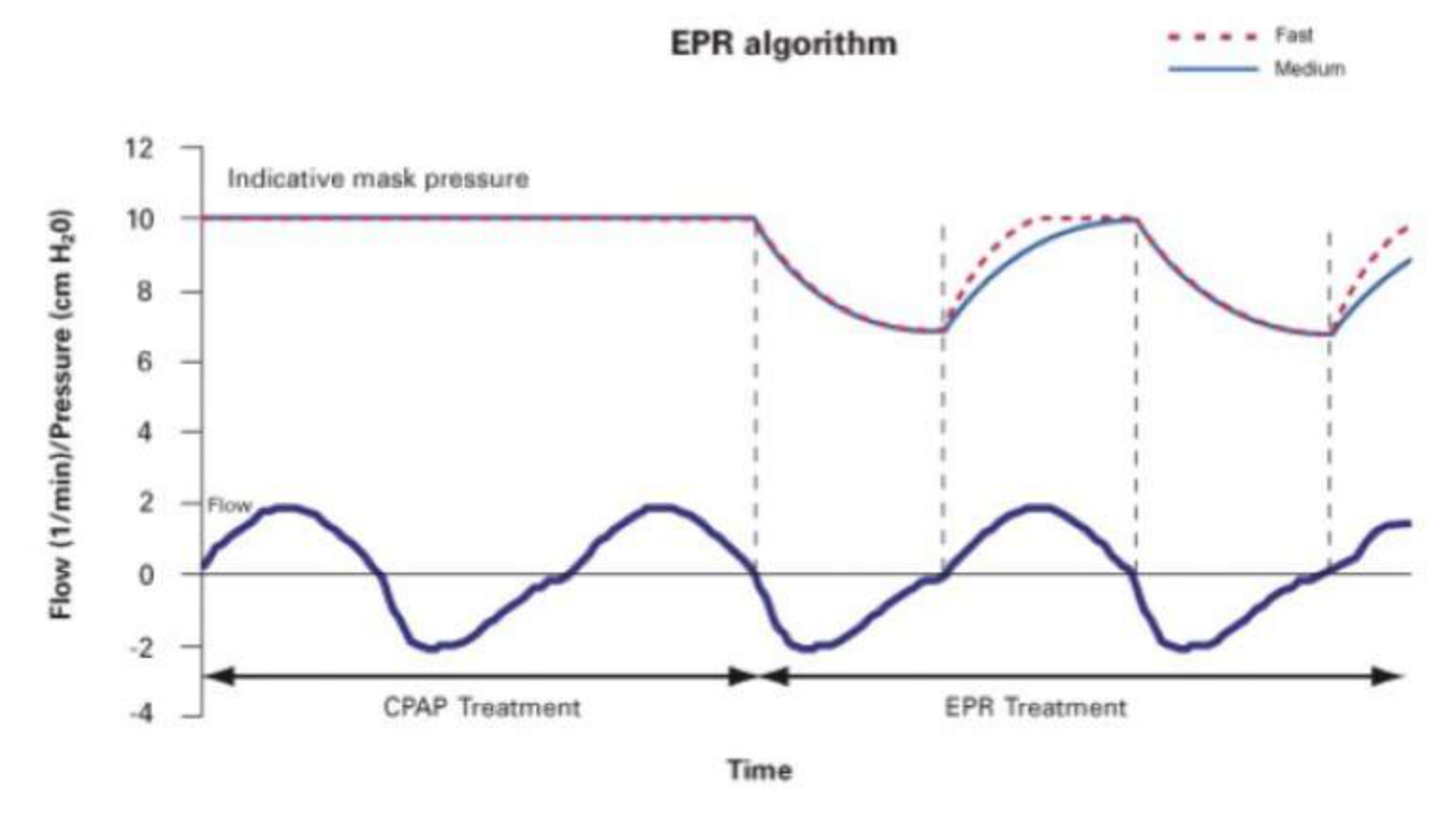
EPR



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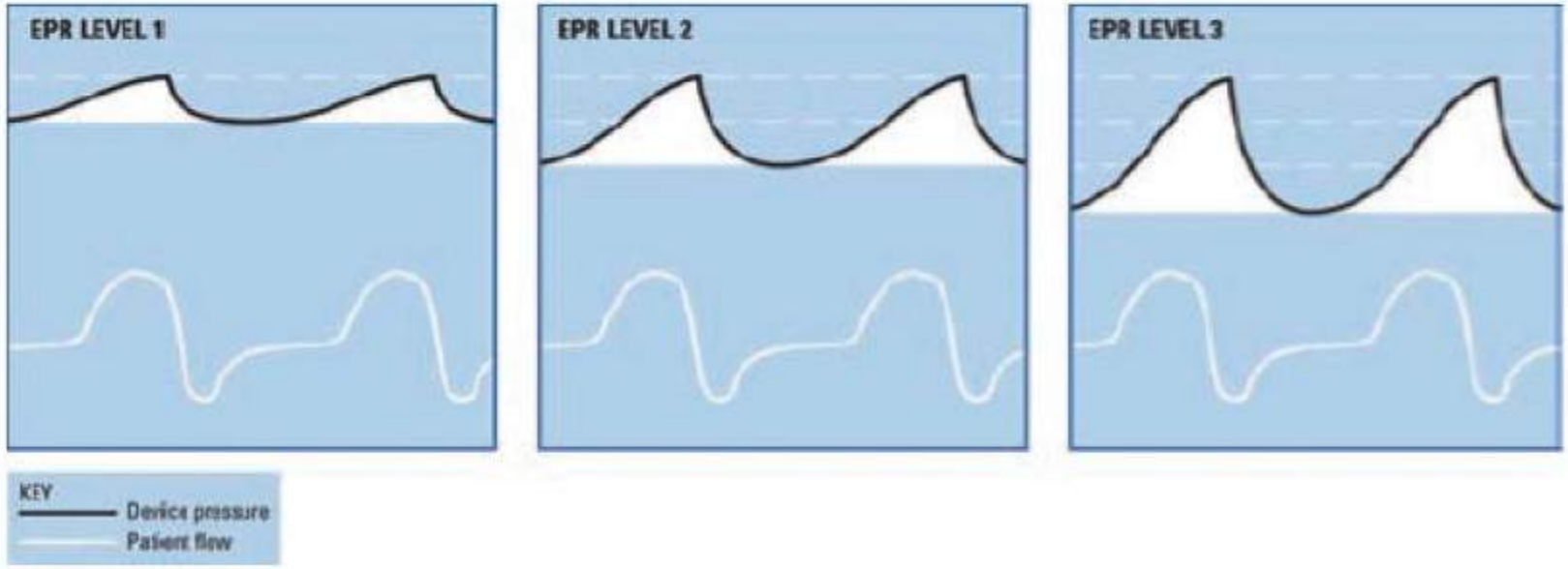
EPR MODIFICABLE

- Setting 2: Medium reduction (2 cm H_2O)
- Setting 3: Maximum reduction (3 cm H_2O).



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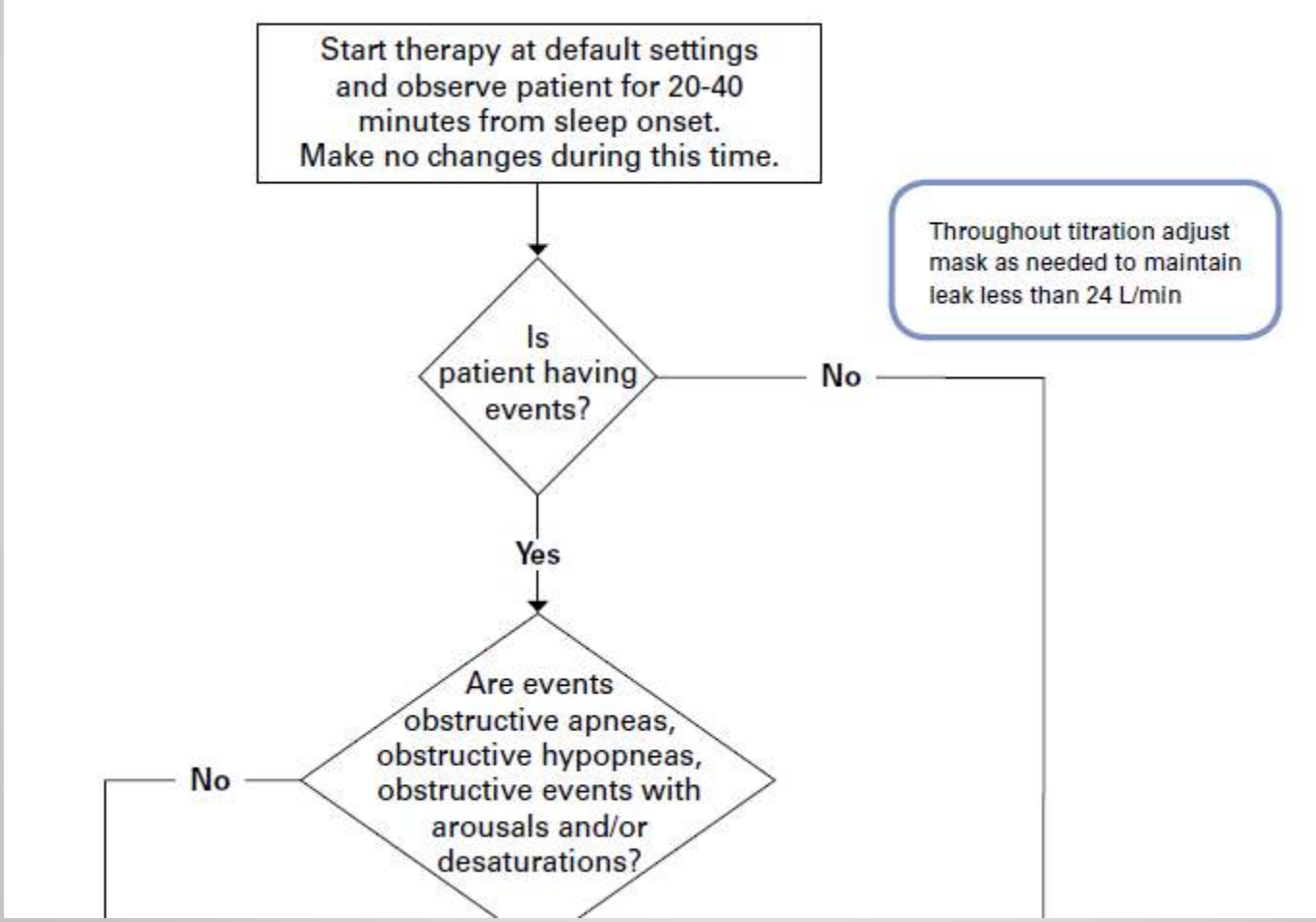
ASV ADAPTATIVE BiPAP



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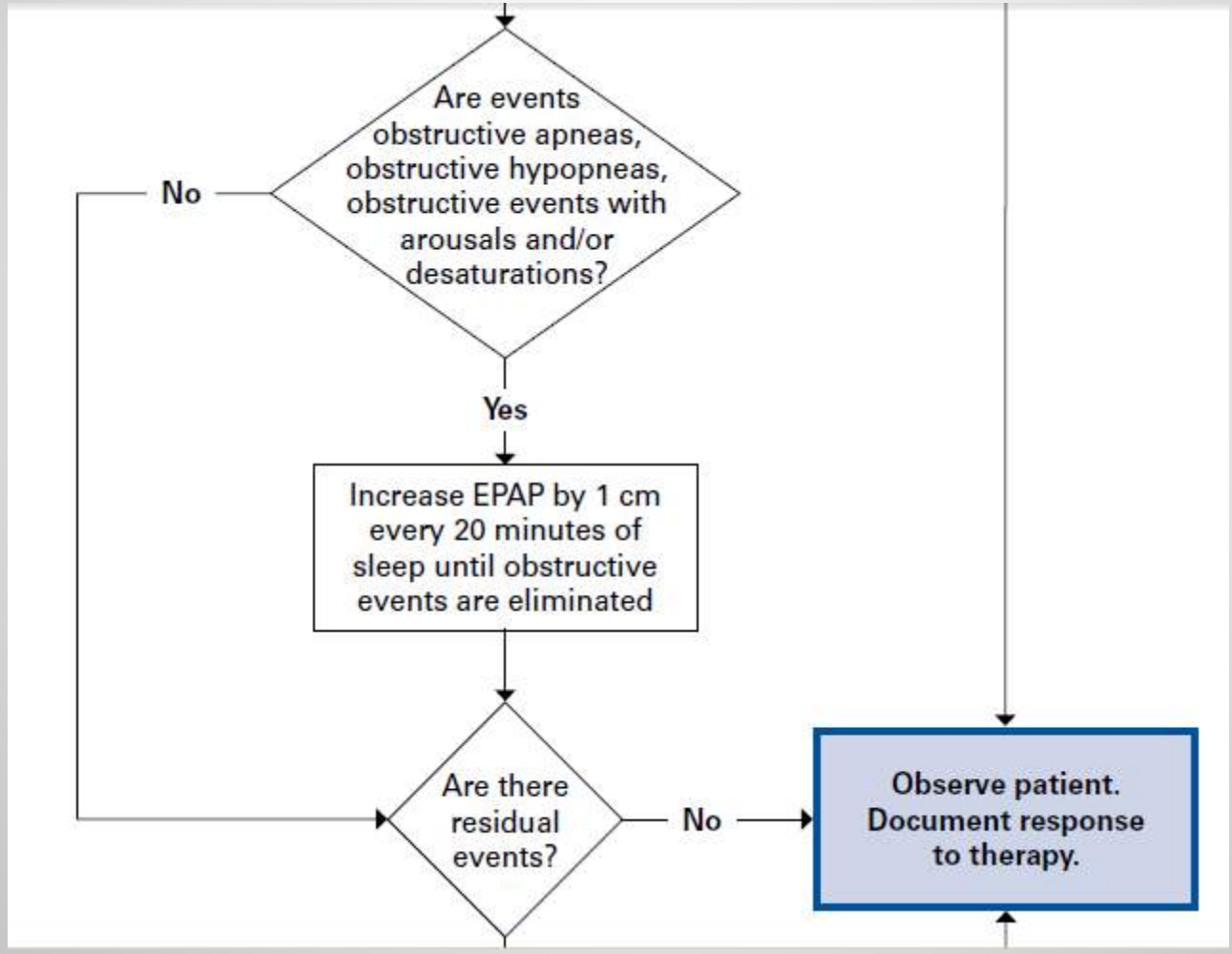
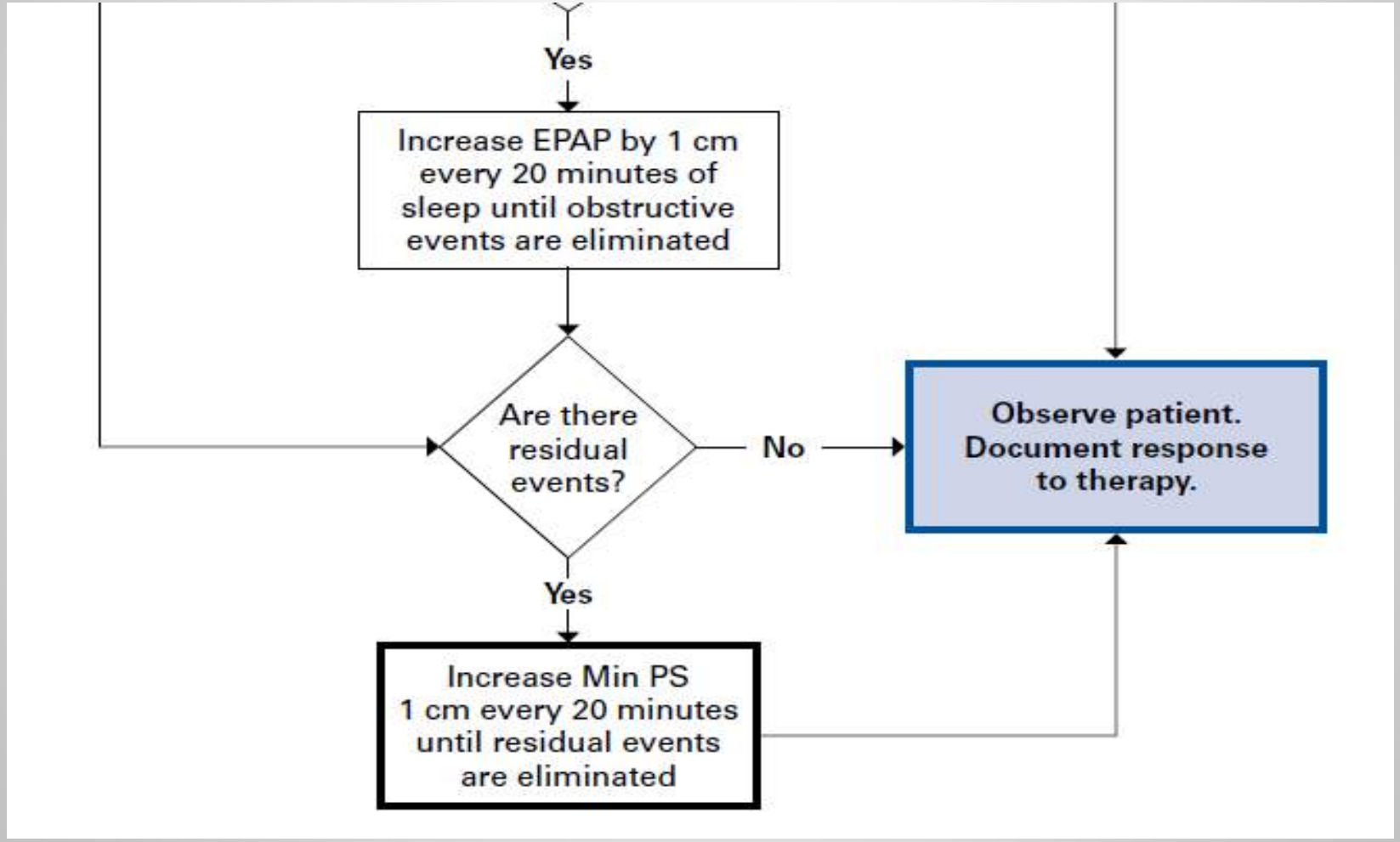
ASV ADAPTATIVE BiPAP



ASV ADAPTATIVE BiPAP



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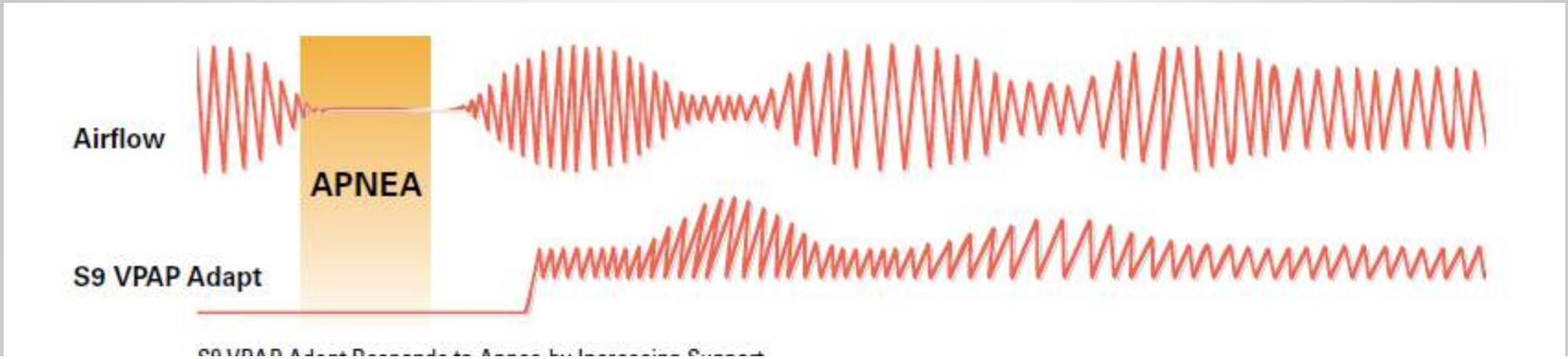
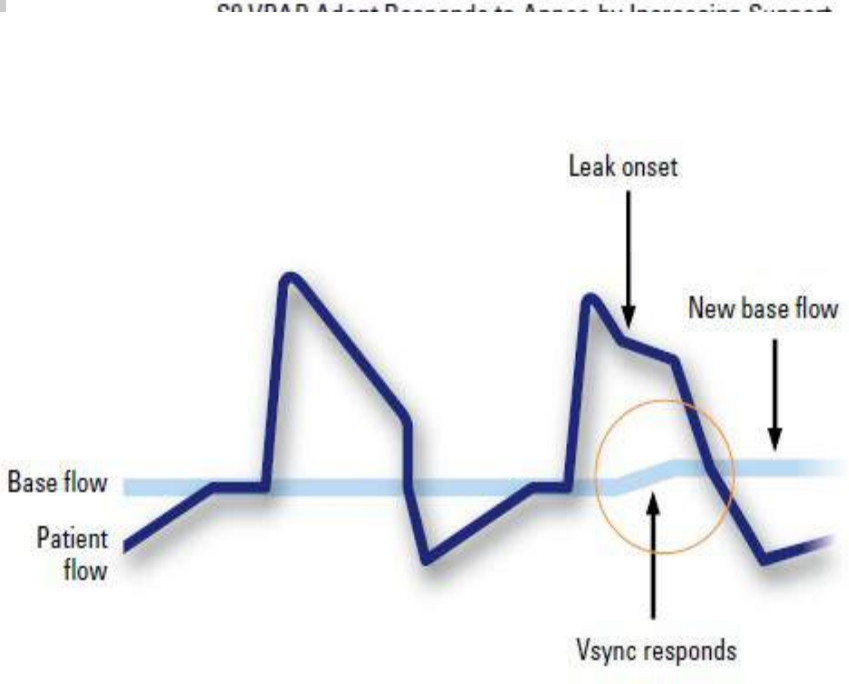
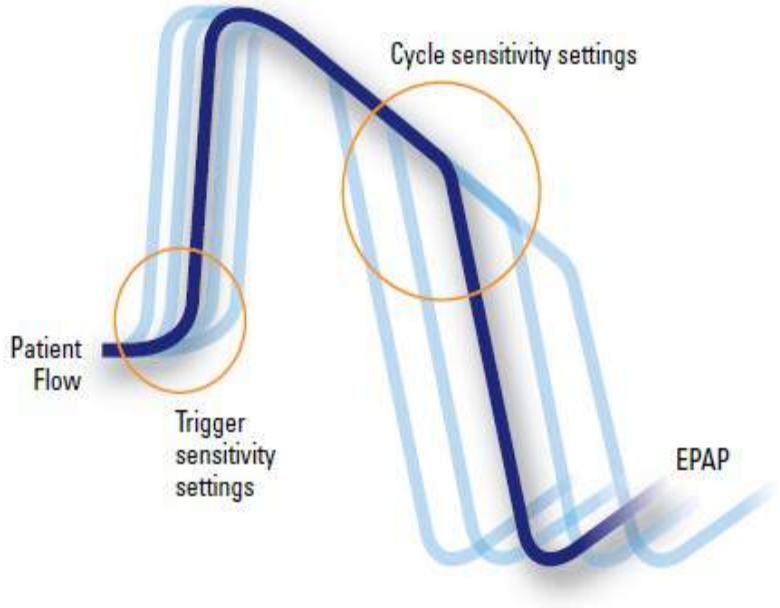
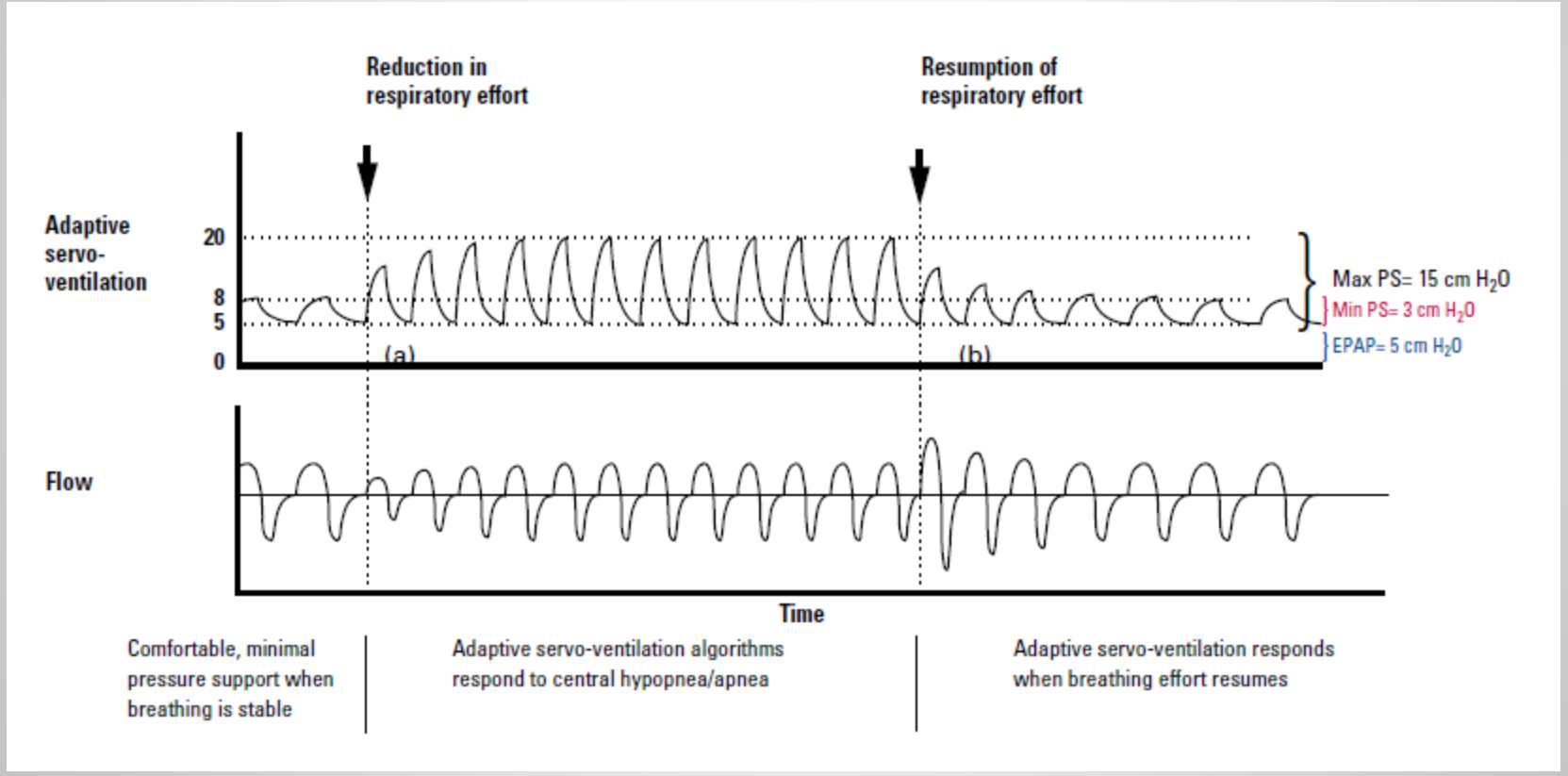
ALGORITMO ASV ADAPTATIVE BIPAP







ADAPTACION DE VENTILACION DE VOLUMEN EN ASV BiPAP



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Información de tratamiento

Tratamiento : ResMed ASV

De : 01:54:59 a.m. **A :** 02:53:22 a.m.

Datos de configuración

Hora	EPAP	PS Máx	PS Mín
01:54:59 a.m.	4	9.6	0
01:55:22 a.m.	5	9.6	0
01:55:34 a.m.	5	10	0
01:55:53 a.m.	5	10	1
01:56:11 a.m.	5	11	1
01:56:37 a.m.	5	12	1
01:57:53 a.m.	5	12	2
01:58:40 a.m.	5	13	2
02:00:39 a.m.	5	14	2
02:01:06 a.m.	5	15	2
02:02:01 a.m.	5	16	2
02:02:51 a.m.	5	17	2
02:03:41 a.m.	5	18	2
02:04:35 a.m.	5	19	2
02:06:25 a.m.	5	20	2
02:18:54 a.m.	5	20	3
02:23:21 a.m.	5	20	4
02:23:54 a.m.	6	19	4
02:24:34 a.m.	6	19	5
02:25:11 a.m.	6	19	6
02:25:38 a.m.	5	19	6

Tratamiento : ResMed ASV

De : 02:54:23 a.m. **A :** 03:55:24 a.m.

Datos de configuración

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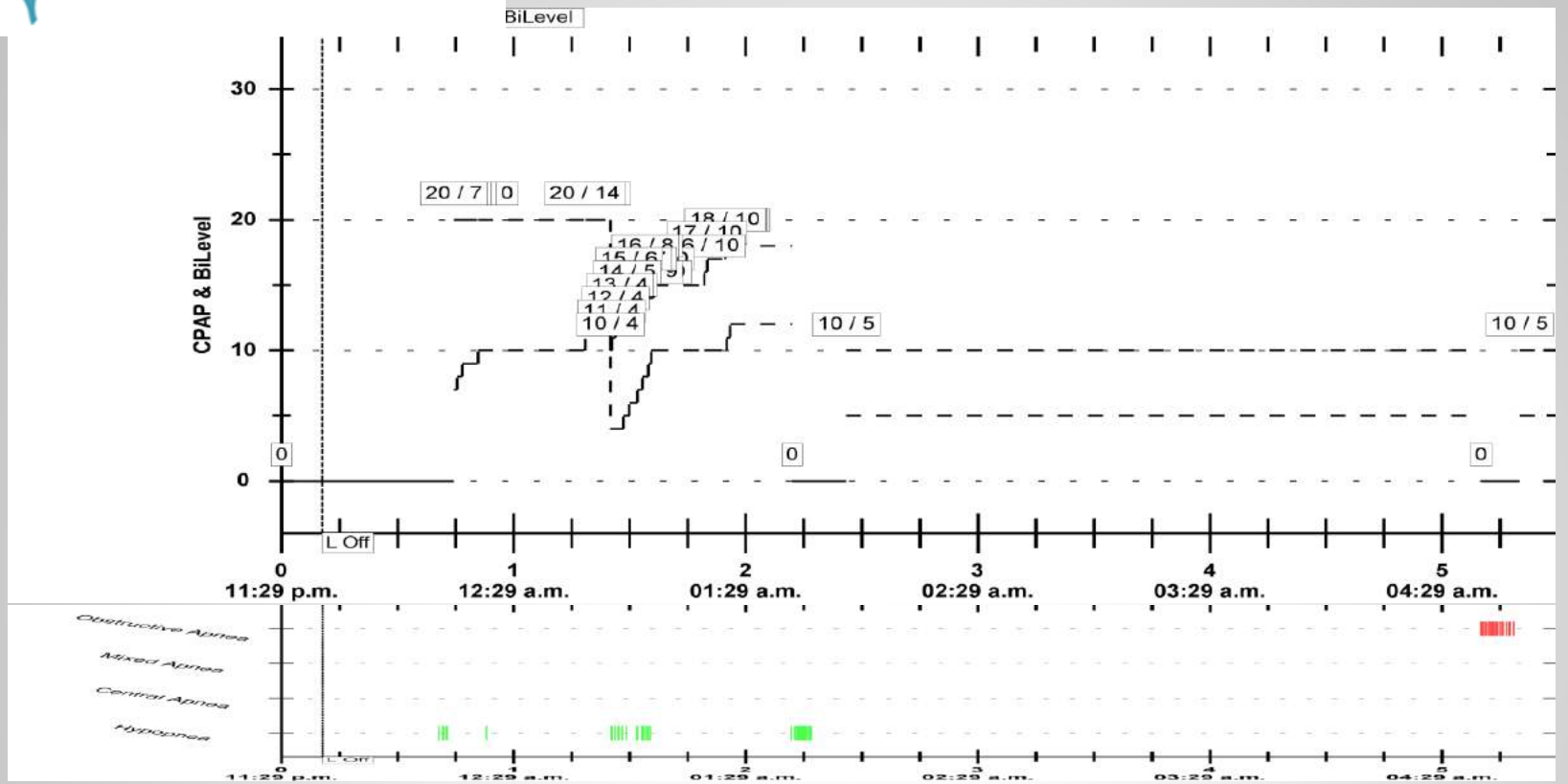
BiLevel
CPAP & BiLevel
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20
10
0
20 / 7
0
20 / 14
18 / 10
17 / 10
16 / 8
6 / 10
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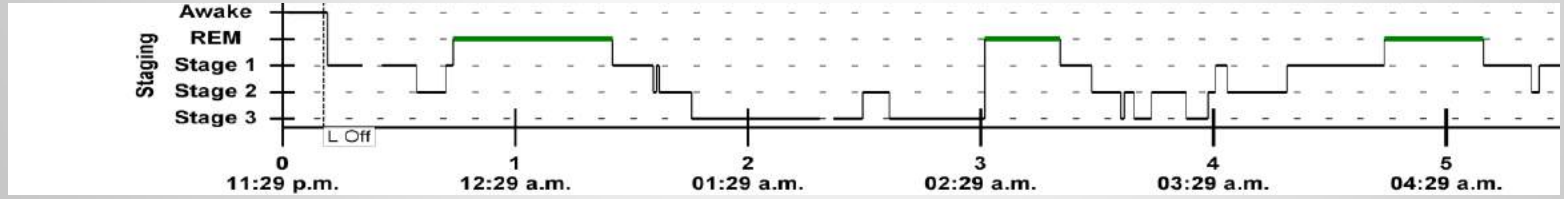
14 / 5
13 / 4
12 / 4
11 / 4
10 / 4
10 / 5
10 / 5
0
0
0
L Off
0
11:29 p.m.
1
12:29 a.m.
2
01:29 a.m.
3
02:29 a.m.
4
03:29 a.m.
5
04:29 a.m.
Obstructive Apnea
Mixed Apnea
Central Apnea
Hypopnea


Staging
Awake
REM
Stage 1
Stage 2
Stage 3
L Off
0
11:29 p.m.
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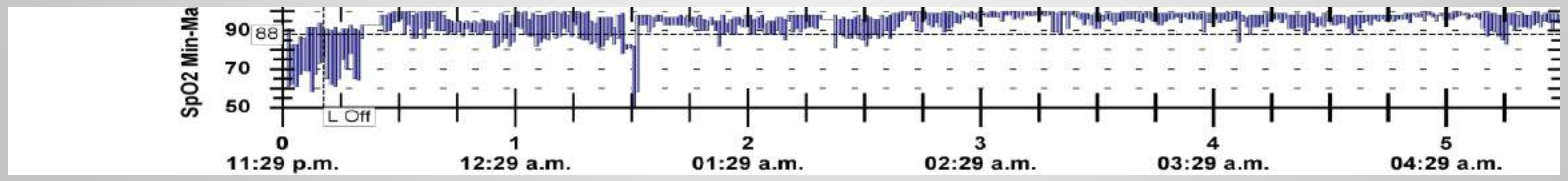
2
01:29 a.m.
3
02:29 a.m.
4
03:29 a.m.
5
04:29 a.m.


SpO2 Min-Ma
90
70
50
88
L Off
0
11:29 p.m.
1
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2
01:29 a.m.
3
02:29 a.m.
4
03:29 a.m.
5
04:29 a.m.

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PRESCRIPCION ASV ADAPTATIVE BIPAP

VPAP Adapt Prescription:

❑ **S9 VPAP™ Adapt w/ Climate Control**

EPAP: 5 cm H_2O (4-15 cm H_2O) *for VPAP Adapt*

Min Press Support: 6 cm H_2O (3-6 cm H_2O)

Max Press Support: 20 cm H_2O (8-16 cm H_2O)

Backup Rate: 15 BPM (automatic)

Interface: O2: 2 LTS/MIN

Sample

ABORDAJE DE LOS PROBLEMAS DE SUEÑO EN DEMENCIA

Tx de comorbilidades	Detalle	Beneficio	limitaciones	Observacion
RLS, PLMD,	TX hierro Agonistas de dopamina GBP	Mejora Sx	Ataques de sueño, Compulsiones/ adicciones, Sedación	Comun en PD

- **Sharon Ooms. Treatment of sleep disorders in dementia**
- Curr Treat Options Neurol. 2016 September ; 18(9): 40

ABORDAJE DE LOS PROBLEMAS DE SUEÑO EN DEMENCIA

Tx de comorbilidades	Detalle	Beneficio	limitaciones	Observacion
RBD	Clonacepan y/o Melatonia	Reduce las injurias	Sedacion con clonazepan mas tolerancia a dosis	Asociado con DLB PDD
Hipersomnia	Mofafinil, Armofinil, anti-cataplejicos	Mejora la alerta	Riesgos CV, Irritabilidad, dependencia	Comun en DLB, PDD

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- Curr Treat Options Neurol. 2016 September ; 18(9): 40

ABORDAJE DE LOS PROBLEMAS DE SUEÑO EN DEMENCIA

Tx de comorbilidades	Detalle	Beneficio	limitaciones	Observacion
Ansiedad y afecto	Antidepresivos Psicoterapia Ansioliticos	Mejora Psq Sx, Sg de sueño (insomnio)	1. Sedación, puede agravar cognición, RLS Time-Intensive	1. Equipo multidisciplinario
Dolor, y otros co-morbilidades	Diversos	Mejorar el sueño	Dolor y enf vesicales pueden causar 1.	

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- Curr Treat Options Neurol. 2016 September ; 18(9): 40

ABORDAJE DE LOS PROBLEMAS DE SUEÑO EN DEMENCIA

Tx de comorbilidades	Detalle	Beneficio	limitaciones	Observacion
Minimizar y o ajustar medicacion En trans sueño Insomnio/hiper somnia	Tx Demencia Tx Dopaminergic Tx dolor, B2 agonistas, HTA, DM, Fx Urinaria, Antiretrovirales, Esteroides, ATB	Mejora sueño	Varios Md Time-Intensive	Multidiciplinario
Dolor, y otros co-morbilidades	Diversos	Mejorar el sueño	Dolor y enf vesicales pueden causar 1.	

- **Sharon Ooms. Treatment of sleep disorders in dementia** Curr Treat Options Neurol. 2016 September ; 18(9): 40

ABORDAJE DE LOS PROBLEMAS DE SUEÑO EN DEMENCIA

Tx del comportamiento de sueño	Detalle	Beneficio	limitaciones	Observacion
Higiene de sueño	MMT	Modesta mejoria en TST	1.Fatiga del cuidador y parientes	Dificil de implementar
Actividad fisica	3-5 por semana 30 a 30 min/vigoroso hasta donde sea posible MMT	Efecto neutral en actigrafia	1. 2. Incómodo Riesgo CV	Ideal terapista fisica profesional

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ABORDAJE DE LOS PROBLEMAS DE SUEÑO EN DEMENCIA

Tx del comportamiento de sueño	Detalle	Beneficio	limitaciones	Observacion
Actividad social	Mejor en MMT con actividad fisica	Pequeños estudios sugieren mejoria	Carga Cuidadores y familiares	No es estandard
Terapia de Luz BLT	Mañana 2500 a 10,000	Reduce los despertamientos nocturnos Aumenta TST	1. 2. Fatiga visual	Útil en DSFD y ASFD

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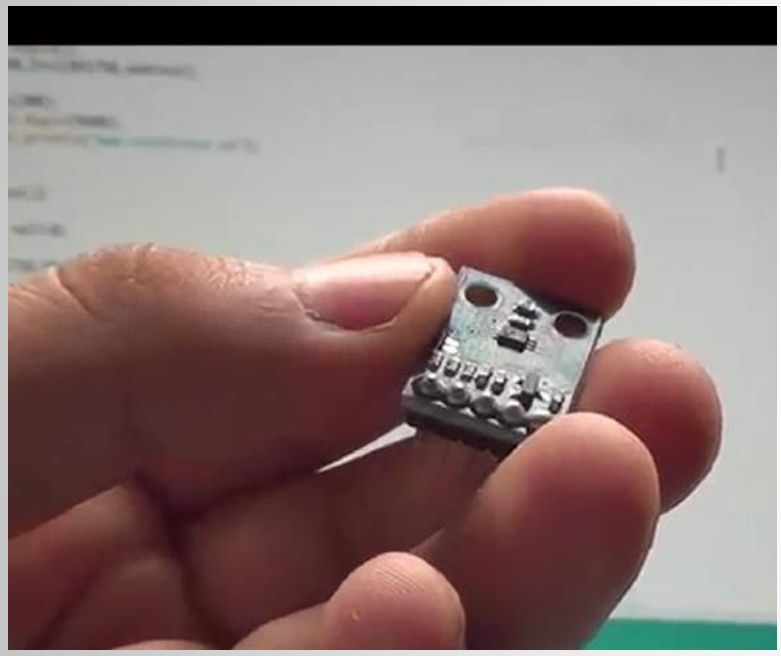
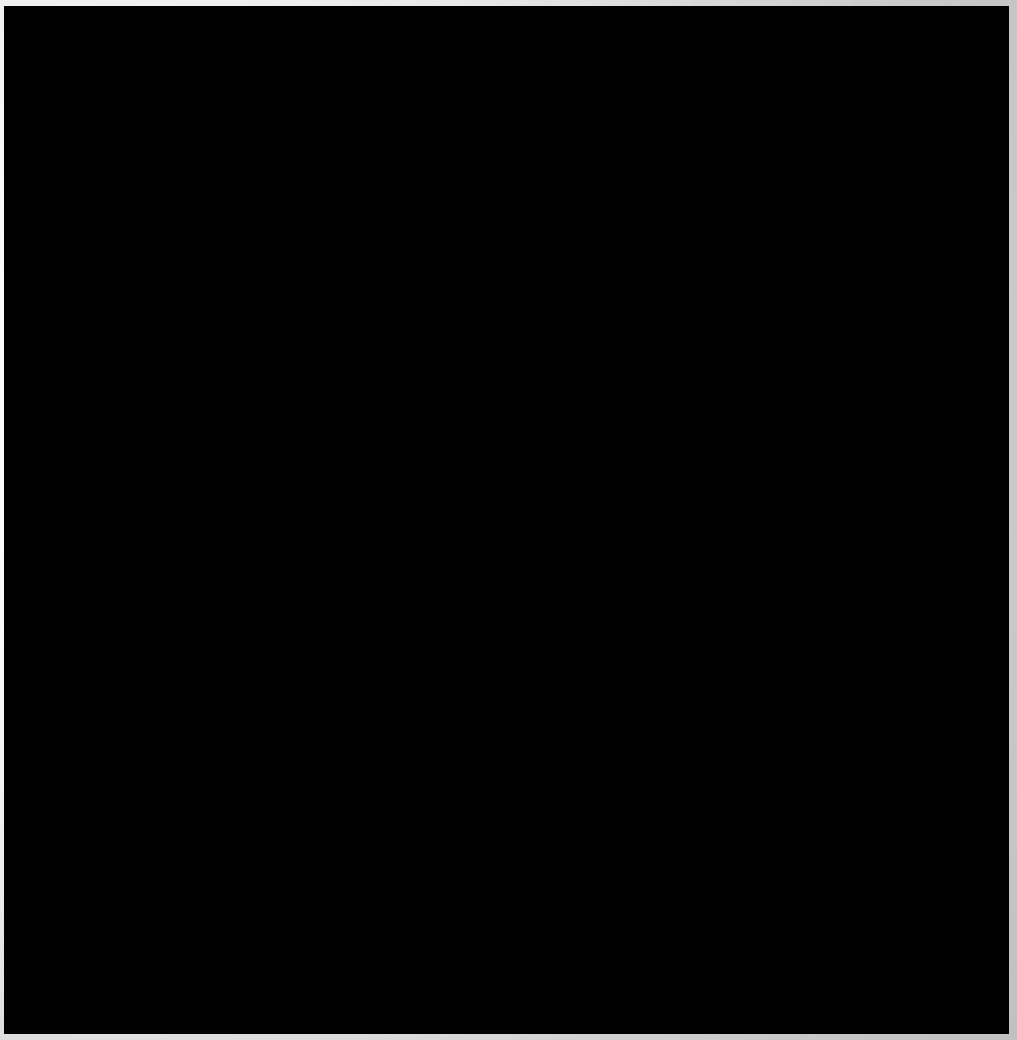
Sensor de Luz BH1750





Melatonina, sedantes y antidepresivos

Tx del comportamiento de sueño	Detalle	Beneficio	limitaciones
Melatonina	2 a 5 mg de liberación inmediata se incrementa 1 a 2 mg cada 4 días hasta llegar a 10 mg mas terapia de luz	Puede aumentar 25 min de sueño	Aislados casos de aumento depresivo Raros casos de efecto sedante y riesgo de caidas
Sedantes y antidepresivos	Trazodona 25 mg incrementando entre 12.5 a 25 mg cada 4 a 5 dias 200 mg , detitulacion mas de 50 mg gradualmente	45 min de TST	Sedación, hipotensión ortostática, arritmias, hta cuidado con el glaucoma, hiponantremia, cuidado con los epilépticos, SIHAD, Xerostomía, Constipación, confusión, ataxia

- **Sharon Ooms. Treatment of sleep disorders in dementia** Curr Treat Options Neurol. 2016 September ; 18(9): 40

NBBA, BZD, ESTIMULANTES

Tx TRATAMIENTOS	Detalle	Beneficio	limitaciones
NBBA	Zolpidem 2.5-5 mg, Eszopiclone 0.5 a 2 mg Zaleplon 5 -10 mg	No hay RCT	Sedación empeoramiento de cognicion, parasomnias
BZD	No hay datos	No hay RCT	Importantes efectos adversos, emporamiento de cognicion, caias, dependencia
Estimulantes	No datos	No datos RCT	HTA, CV, Irritabilidad

- **Sharon Ooms. Treatment of sleep disorders in dementia** Curr Treat Options Neurol. 2016 September ; 18(9): 40

Psychotic Features, Behavior Dyscontrol, Nocturnal Agitation, Nocturnal Wandering			
Donepezil	5 mg qAM	Increase to 10 mg qAM 4 wk later	5-10 mg qAM
Rivastigmine†	1.5 mg bid	Increase in 1.5-mg increments q4w in bid dosing (AM and hs)	3-6 mg bid
Galantamine†	4 mg bid	Increase in 4-mg increments q4wk in bid dosing (AM and hs)	4-12 mg bid
Risperidone	0.5 mg qhs	Increase in 0.5-mg increments q7d in bid dosing (AM and hs)	0.5 mg qhs to 1.5 mg bid
Olanzapine	5 mg qhs	Increase in 5-mg increments q7d in bid dosing (AM and hs)	5 mg qhs to 10 mg bid
Clozapine‡	12.5 mg qhs	Increase in 12.5-mg increments q2-3d	12.5-50 mg qhs
Quetiapine	25 mg qhs	Increase in 25-mg increments q3d	25-100 mg qhs
Valproic acid‡	125 mg qhs	Increase in 125mg increments q 3-7d in bid to tid dosing	250 mg qhs to 500 mg tid
Carbamazepine‡	100 mg qhs	Increase in 100-mg increments q3-7d in bid to tid dosing	200 mg qhs to 200 mg tid

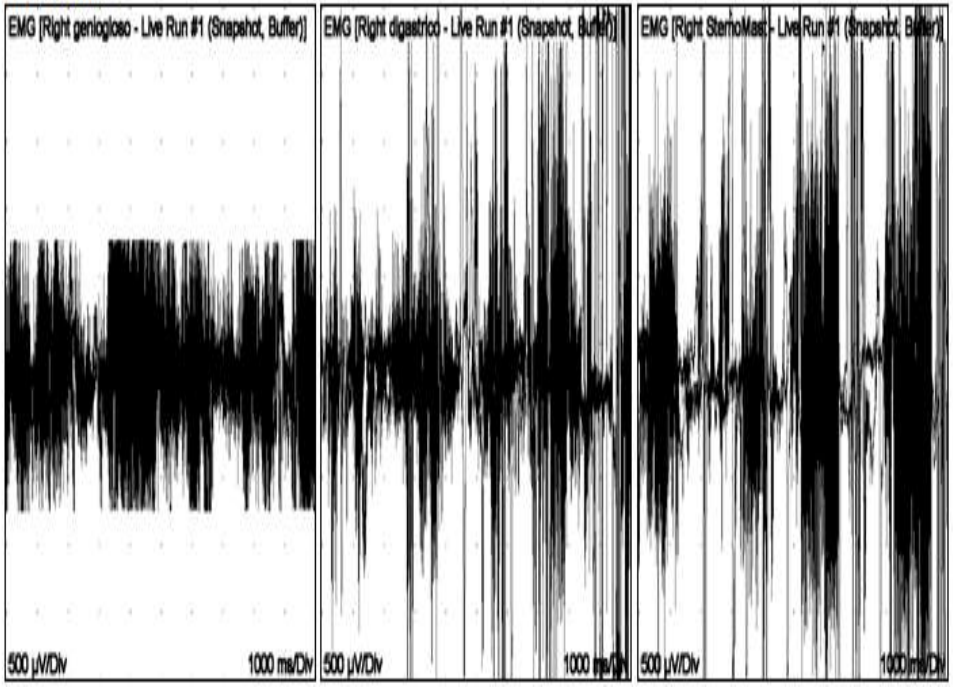
- Sleep Disorders and Disturbances in Dementia:
  Selected Medications with Suggested Dosing Schedules*Adapted from Boeve B, Silber M, Ferman T. Current management of sleep disturbances in dementia. Curr Neurol Neurosci Rep 2002;2:169-177.

PRECAUSIONES CON ANTIPSICOTICOS

EMG

Side	Muscle	Nerve	Root	Ins Act	Fibs	Psw	Rep	Fasc	Amp	Dur	Poly	Recrt	Int Pat	Comment
Right	SternoMast	SpinAcc	CN XI, C2-3	Nml	Nml	Nml	Nml	Nml	Nml	Nml	0	normal	Nml	Nml
Right	digastrico	SpinAcc	CN XI, C2-3	Nml	Nml	Nml	Nml	Nml	Nml	Nml	0	normal	Nml	Nml
Right	geniogloso	SpinAcc	CN XI, C2-3	Nml	Nml	Nml	Nml	Nml	Nml	Nml	0	normal	Nml	Nml

Waveforms:



: El análisis clínico, visual y electrofisiológicos sugieren una disquinesia tardiva, generalmente por medicamentos, puede ser candidato tratamientos neurolépticos como quetiapina, haloperidol, etc. El tratamiento con toxina botulina del tipo A y/o tratamiento adyuvante con estimulación transcraneal repetitiva (rTMS) -1-2- pueden ser de utilidad. La excesiva sobre actividad hace difícil la infiltración con toxina botulínica con precisión aun con guía electromiográfica y esto puede estar implicado en efectos erráticos y de corto plazo por que se sugiere sin embargo insistir y podría de utilidad la infiltración con sedación superficial y bien controlada con medico anestesiólogo.

Referencias:

-1- https://www.mdmag.com/medical-news/transcranial-magnetic-stimulation-shows-promise-as-tardive-dyskinesia-treatment

-2- S. Lavania S .Effect of right DLPFC-repetitive transcraneal magnetic stimulation (rTMS) on tardive dyskinesia in patients with psychosis October 15, 2017 (381), Supp, 576

SUEÑO Y RBD

Table 1. Comparison between the first 44 subjects who were diagnosed with IRBD between November 1991 and March 2003, and the following 130 who were diagnosed between April 2003 and July 2013.

	Patients diagnosed with IRBD between November 1991 and March 2003 (n = 44)	Patients diagnosed with IRBD between April 2003 and July 2013 (n = 130)	P value
Sex (male/female)	39/5	97/33	0.052
Age at estimated RBD onset (years)	62.75±7.34 (45–77)	62.32±7.92 (40–81)	0.744
Age at RBD diagnosis (years)	69.07±6.56 (56–85)	68.57±6.32 (50–85)	0.655
RBD duration (years)	16.50±5.07 (8–31)	10.16±6.65 (1–34)	<0.0001
Follow-up duration after diagnosis of RBD (years)	9.64±3.34 (1–15)	3.50±2.72 (0.1–10)	<0.0001
Self-awareness of abnormal sleep behaviors	28(63.6%)	70(54.3%)	0.279
Unpleasant dream recall	42(95.5%)	118(90.8%)	0.323
Age at diagnosis of emerging defined neurodegenerative syndrome (years)	74.64±5.60 (60–85)	74.31±4.13 (64–80)	0.793
Diagnoses of emerging defined neurodegenerative syndrome (n)	PD = 16 DLB = 15 MSA = 1 MCI = 4	PD = 6 DLB = 14 MSA = 1 MCI = 8	
Estimated risk of conversion after 5 years of IRBD diagnosis (%)	34.8	22.6	
Estimated risk of conversion after 10 years of IRBD diagnosis (%)	73.4	72.2	

Data are given in number, mean, standard deviation and range. RBD = REM sleep behavior disorder; PD = Parkinson disease; DLB = dementia with Lewy bodies; MSA = multiple system atrophy; MCI = mild cognitive impairment.
doi:10.1371/journal.pone.0089741.t001

Iranzo A, Fernández-Arcos A, Tolosa E, Serradell M, Molinuevo JL, et al. (2014) Neurodegenerative Disorder Risk in Idiopathic REM Sleep Behavior Disorder: Study in 174 Patients. PLOS ONE 9(2): e89741. https://doi.org/10.1371/journal.pone.0089741
https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0089741

MEJORAMIENTO DIAGNOSTICO PLGS

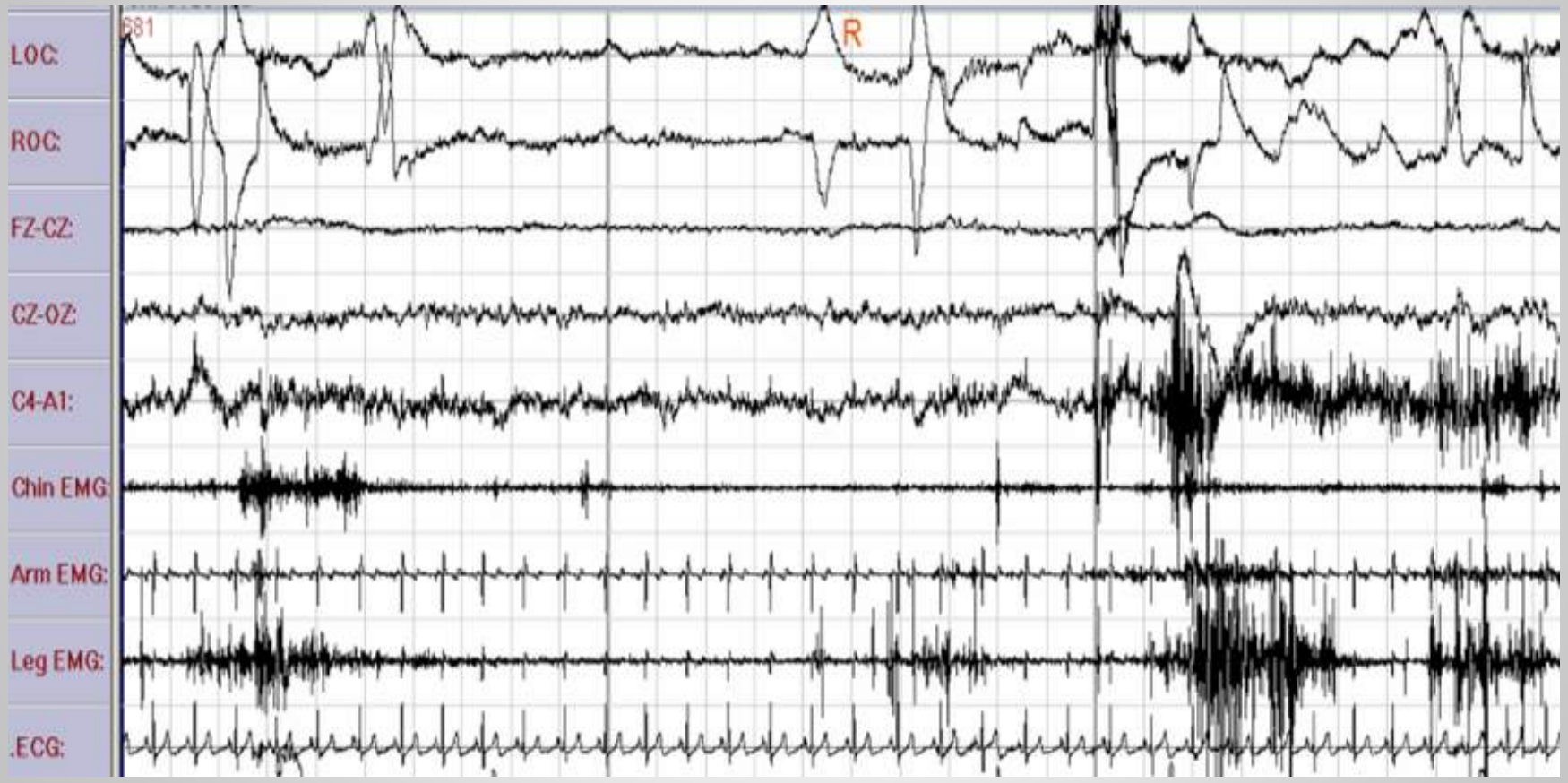
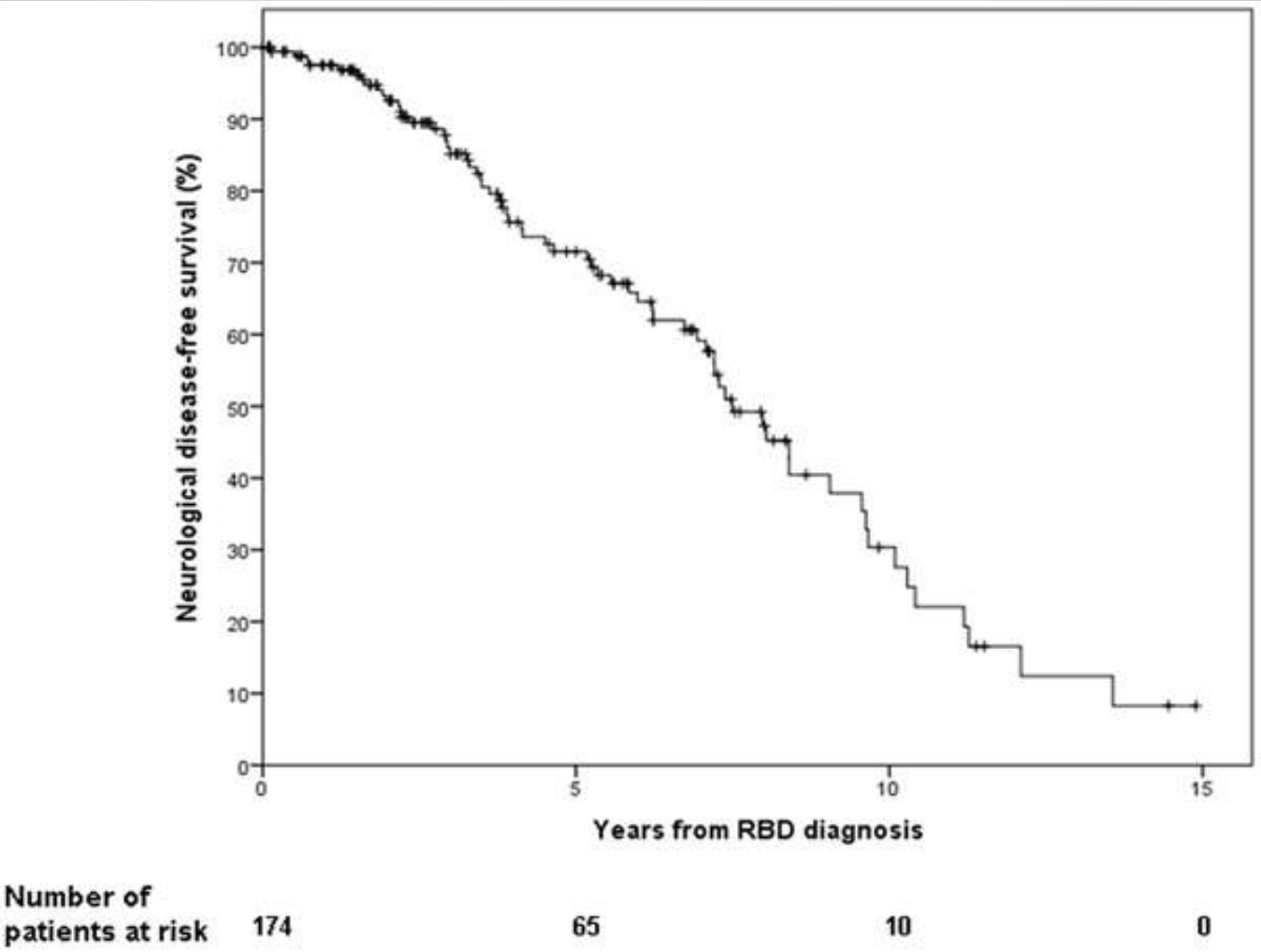


Figure 1. Rates of neurological-disease-free-survival according to the time of IRBD diagnosis in the 174 patients from the cohort.



Iranzo A, Fernández-Arcos A, Tolosa E, Serradell M, Molinuevo JL, et al. (2014) Neurodegenerative Disorder Risk in Idiopathic REM Sleep Behavior Disorder: Study in 174 Patients. PLOS ONE 9(2): e89741. https://doi.org/10.1371/journal.pone.0089741
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GRACIAS