Hôpital du Valais
Spital Wallis

hôpital fribourgeois
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4e Symposium Séduno-Fribourgeois de Médecine Intensive

Troubles du sommeil aux soins intensifs: Impact et prise en charge

Dr Nawfel Ben Hamouda MD, MSc
Médecin associé, MER

Service de Médecine Intensive Adulte

UNIL | Université de Lausanne

11.11.2022

Clinical Practice Guidelines for the Prevention and Management of Pain, Agitation/Sedation, Delirium, Immobility, and Sleep Disruption in Adult Patients in the ICU

Society of Critical Care Medicine
The Intensive Care Professionals

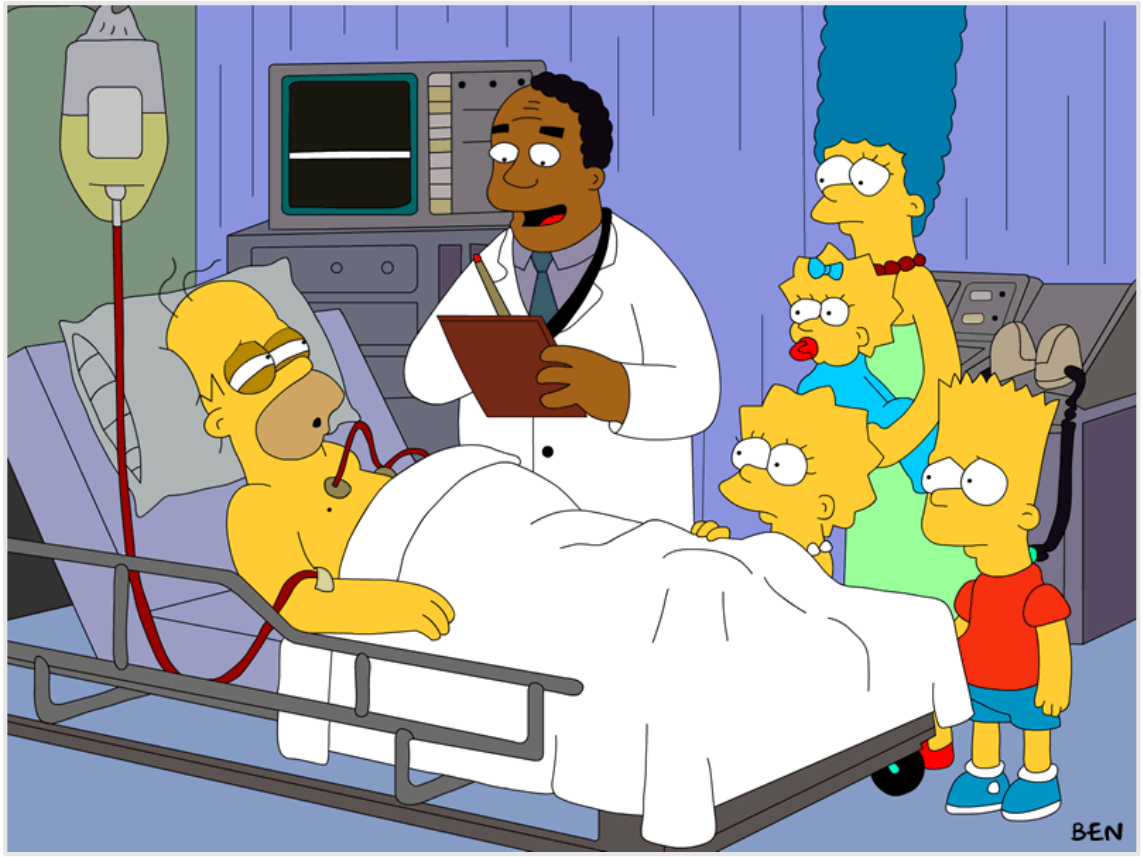
PAIN | AGITATION | DELIRIUM | IMMOBILITY | SLEEP

Devlin JW, et al. Crit Care Med 2018

Fréquents ?

Ressenti des patients ?

- Soif 63%
- Anxiété/Peur 62%
- Manque de sommeil 61%
- Solitude Isolement 46%
- Douleur 43%
- Chaud/Froid 28/37%
- Faim 13%



USI, n= 76
med, chir, trauma

LOS 4.4 J

Simini B. Lancet 1999

Caractéristiques ?

Première nuit postop

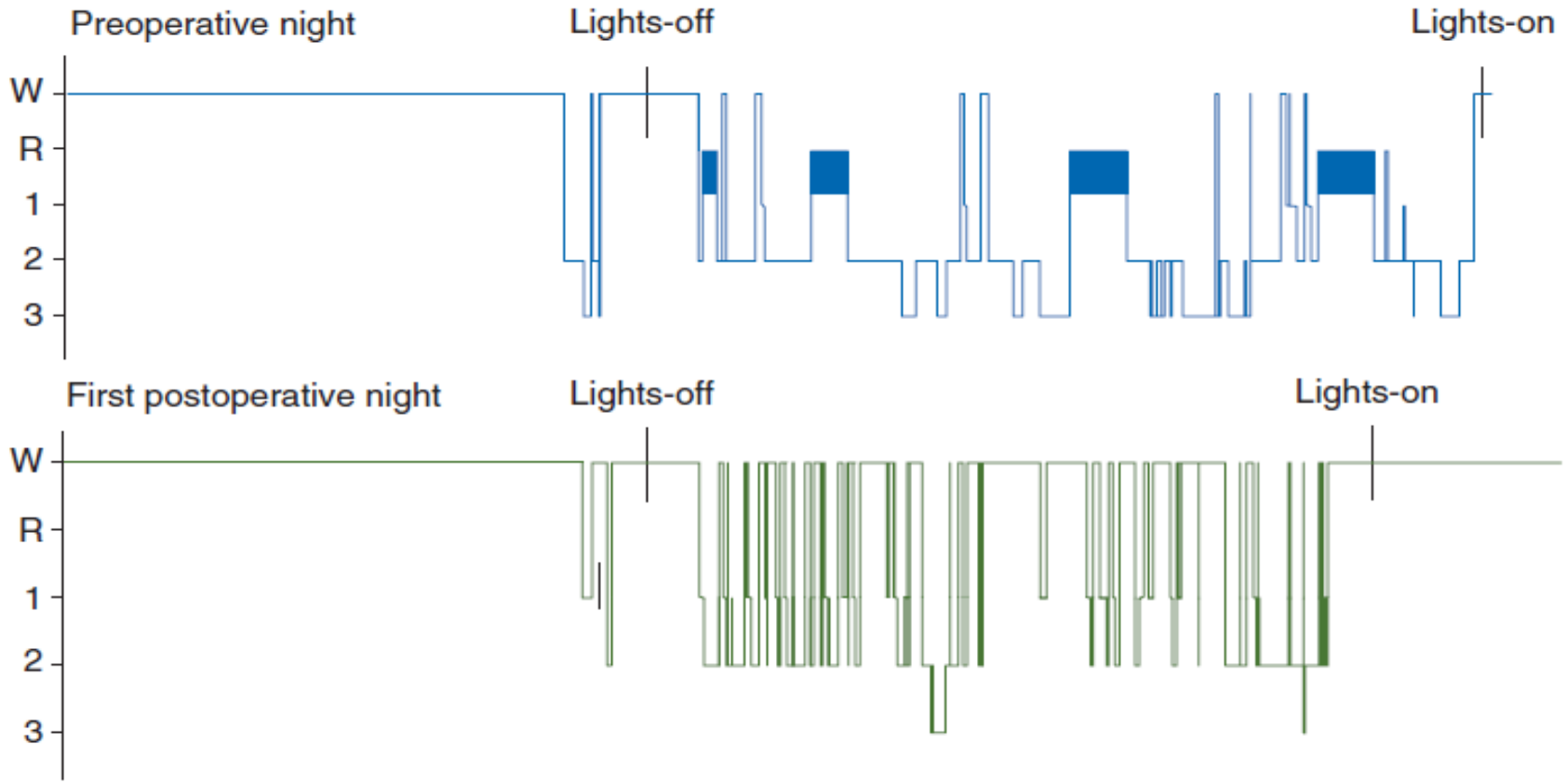
British Journal of Anaesthesia **109** (5): 769–75 (2012)
Advance Access publication 24 July 2012 · doi:10.1093/bja/aes252

BJA

NEUROSCIENCES AND NEUROANAESTHESIA

Sleep disturbances after fast-track hip and knee arthroplasty

L. Krenk[1,2*], P. Jennum[3] and H. Kehlet[1,2]



Krenk et al. Br J Anaesth 2012

Caractéristiques ?

Activity, Sleep and Cognition After Fast-Track Hip or Knee Arthroplasty

Lene Krenk, MD [a,b,c], Poul Jennum, PhD [d], Henrik Kehlet, PhD [a,b]

Nuits postopératoires

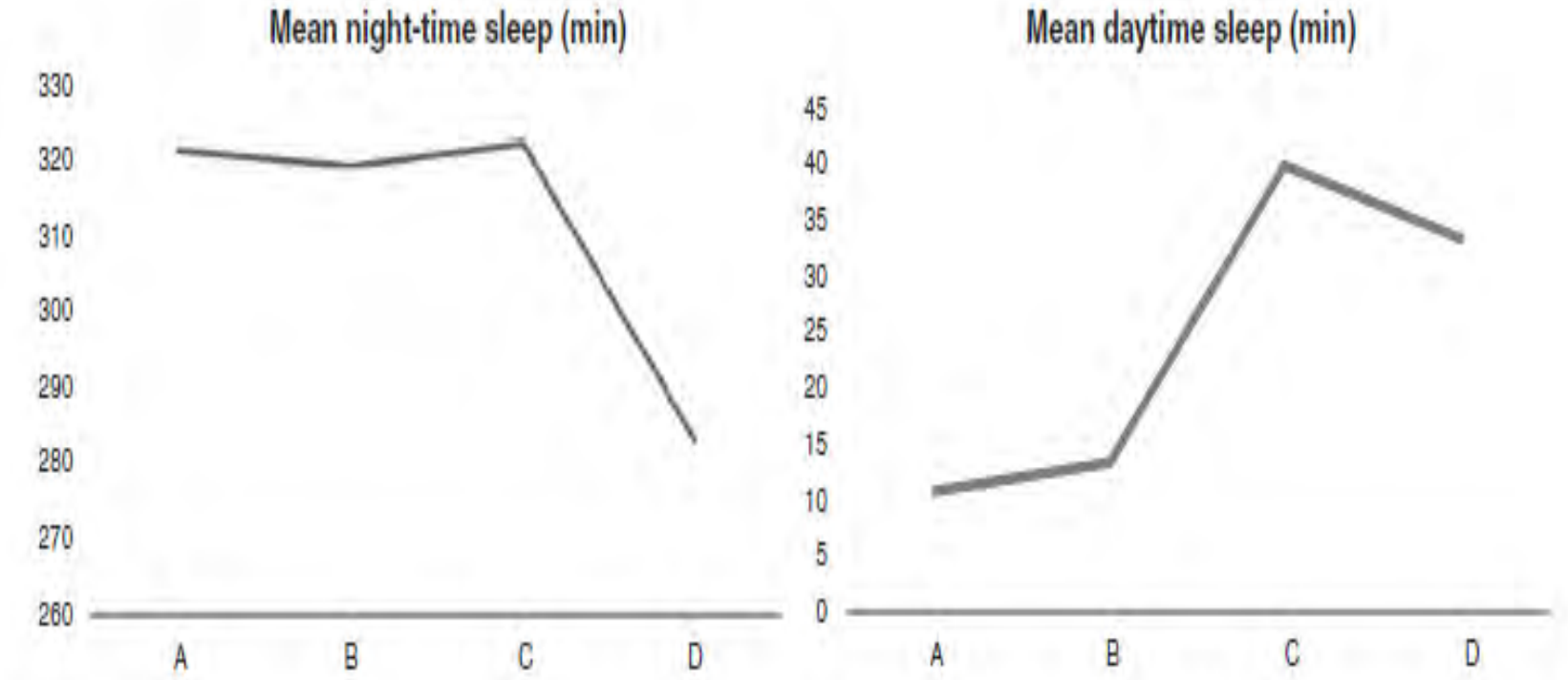


Fig. 2. Development of activity, pain and sleep parameters according to time periods; preoperatively (A), during hospitalisation (B), about 4 days postoperatively at home (C), about 6 days postoperatively at home (D).

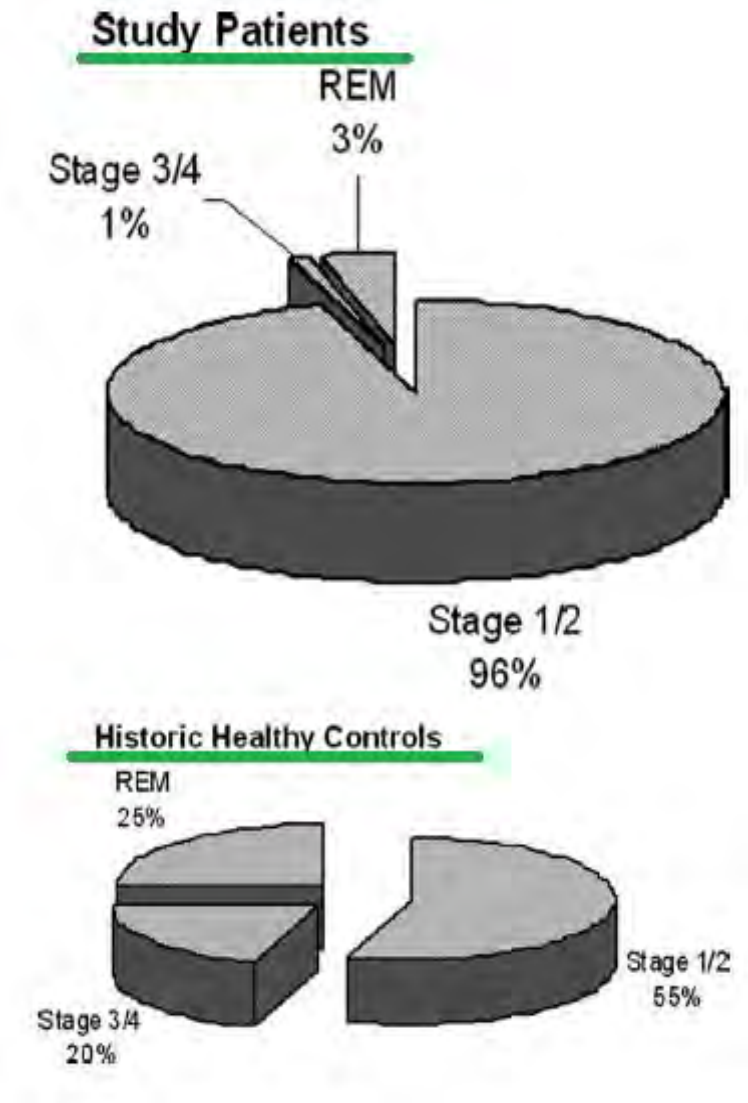
Krenk et al. J Arthroplasty 2013

Caractéristiques ?

Quantity and Quality of Sleep in the Surgical Intensive Care Unit: Are Our Patients Sleeping?

Randall S. Friese, MD, Ramon Diaz-Arrastia, MD, PhD, Dara McBride, RN, Heidi Frankel, MD, and Larry M. Gentilello, MD

Variable	Median [IQR]/Count	Range/Proportion
Age (yr)	37.5 [31, 58.3]	20–83
Male	13	81.3%
Trauma	10	62.5%
Mechanical ventilation	5	31.3%
ICU day at PSG	3 [2, 9.5]	2–19
Patients receiving narcotic during PSG recording	13	81.3%
Patients receiving benzodiazepam during PSG recording	3	18.8%



Friese et al. J Trauma 2007

Caractéristiques: Résumé

Sommeil trés fragmenté	
Nombre de réveils	↑
Temps total de sommeil	= ou ↓
NREM stade 1	↑
NREM stade 2	↓ ou ↑
NREM stade 3	↓
NREM Stade 4	↓
REM	↓

Friese. Crit Care Med 2008

Weinhouse et al. Sleep 2006

Conséquences?

Kerr RG, et al. Am J Crit Care 2016

Conséquences: complications postopératoires

Does Sleep Quality Affects the Immediate Clinical Outcome in Patients Undergoing Coronary Artery Bypass Grafting: A Clinico-biochemical Correlation

Table 2: Comparison of demographics and clinical profile of patients in both the groups by Chi-squire test

Parameters	Group I, PSQI ≤5 (*n*=101)	Group II, PSQI >5 (*n*=55)	*P*
Duration of mechanical ventilation (h)	10.10±8.19	14.76±12.05	0.001
Duration of ICU stay (days)	2.08±0.95	2.70±1.45	0.0016
Postoperative complication (yes)‡	3 (2.9)	24 (43.43)	0.0001

Conclusion: Poor sleep quality associated with a higher incidence of adverse perioperative events in patients undergoing elective CABG.

Parameters	PSQI ≤5 (*n*=101)	PSQI >5 (*n*=55)	*P*
Arrhythmia	7 (6.93)	16 (29.09)	0.001
Respiratory dysfunction	0	4 (7.2)	0.007
Infection	3 (2.9)	4 (7.2)	0.220
Myocardial dysfunction and low cardiac output syndrome	0	2 (3.63)	0.056
Neurological complication	0	1 (1.81)	0.17
Renal dysfunction	0	4 (7.2)	0.006
Death	0	2 (3.63)	0.05

Choudhury M, et al. Ann Card Anaesth 2017

Conséquences: Système immunitaire

Partial night sleep deprivation reduces natural killer and cellular immune responses in humans

MICHAEL IRWIN,[1] JOHN MCCLINTICK, CAROLYN COSTLOW, MELISSA FORTNER, JACK WHITE, AND J. CHRISTIAN GILLIN

Departments of Psychiatry, University of California, and San Diego Veterans Affairs Medical Center, San Diego, California 92161, USA

42 volontaires sains
22h→3h

Effects of 48 Hours Sleep Deprivation on Human Immune Profile

Levent Öztürk[1], Zerrin Pelin[2], Derya Karadeniz[2], Hakan Kaynak[2], Lütfi Çakar[1] and Erbil Gözükırmızı[2]

10 volontaires sains privés de sommeil x 48h
vs 6 contrôles

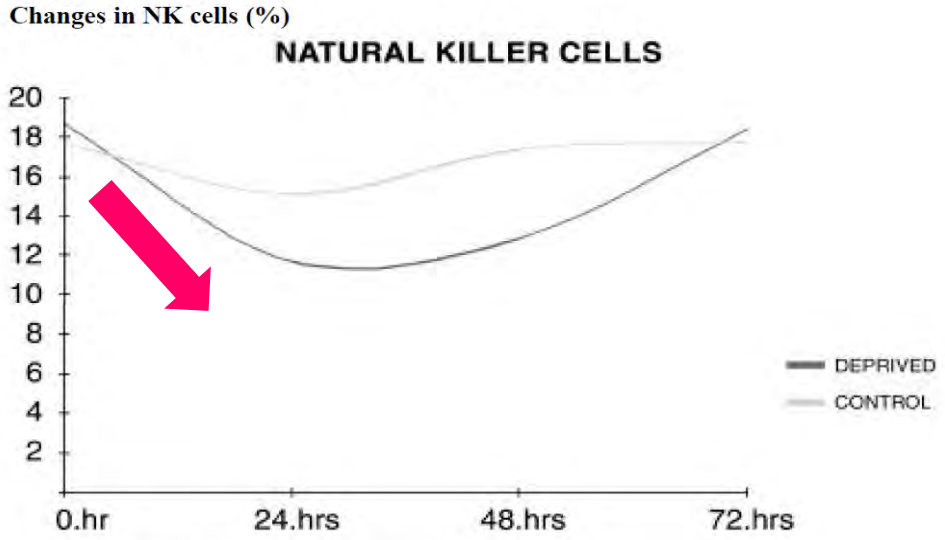


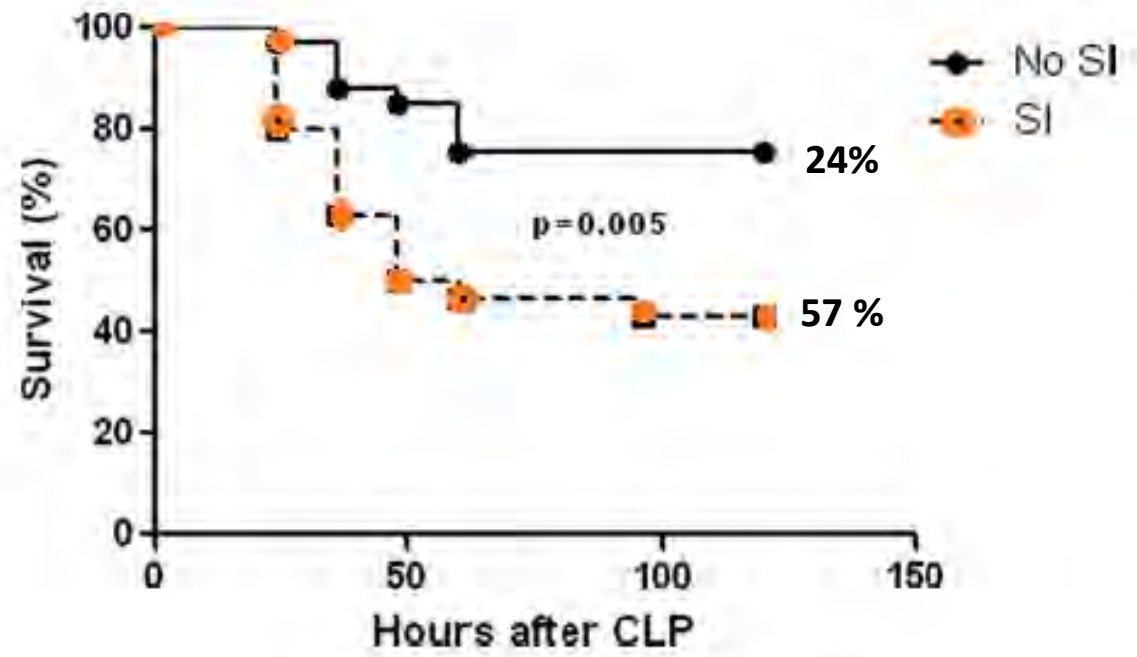
Figure 1. NK Cell Proportion in Sleep-Deprived and Control Subjects

Irwin M, el al. FASEB J 1996
Oztürk L, et al. Sleep Res Online 1999

Conséquences: mortalité

Sleep Deprivation After Septic Insult Increases Mortality Independent of Age

Randall S. Friese, MD, Brandon Bruns, MD, and Christopher M. Sinton, PhD

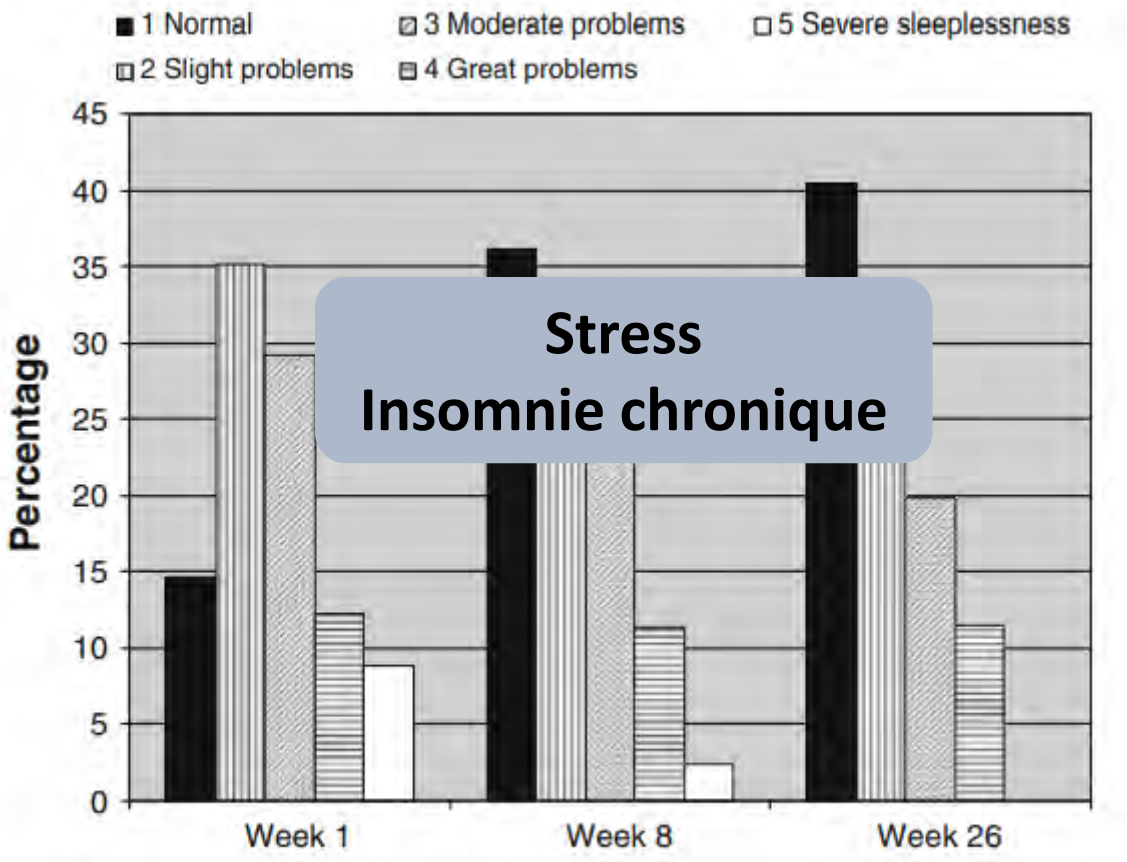


5-day survival curve after CLP with and without Sleep interruption x 48H

Friese et al. J Trauma 2009

Conséquences: psychologiques

Sleep and other factors associated with mental health and psychological distress after intensive care for critical illness



Stress
Insomnie chronique

6 months ICU discharge
LOS 48h, MV > 24h
n = 195
HRQOL

Female gender, younger age and sleeping problems were associated with impaired psychological outcomes

Fig. 2 Sleep problems reported at weeks 1, 8 and 26 after hospital discharge

McKinley S, et al. Intensive Care Med 2012

Facteurs favorisants :

- Lumière
- Bruit
- Ventilation
- Sédation
- Age
- ATCDs
- Douleur
- Inflammation
- Stress

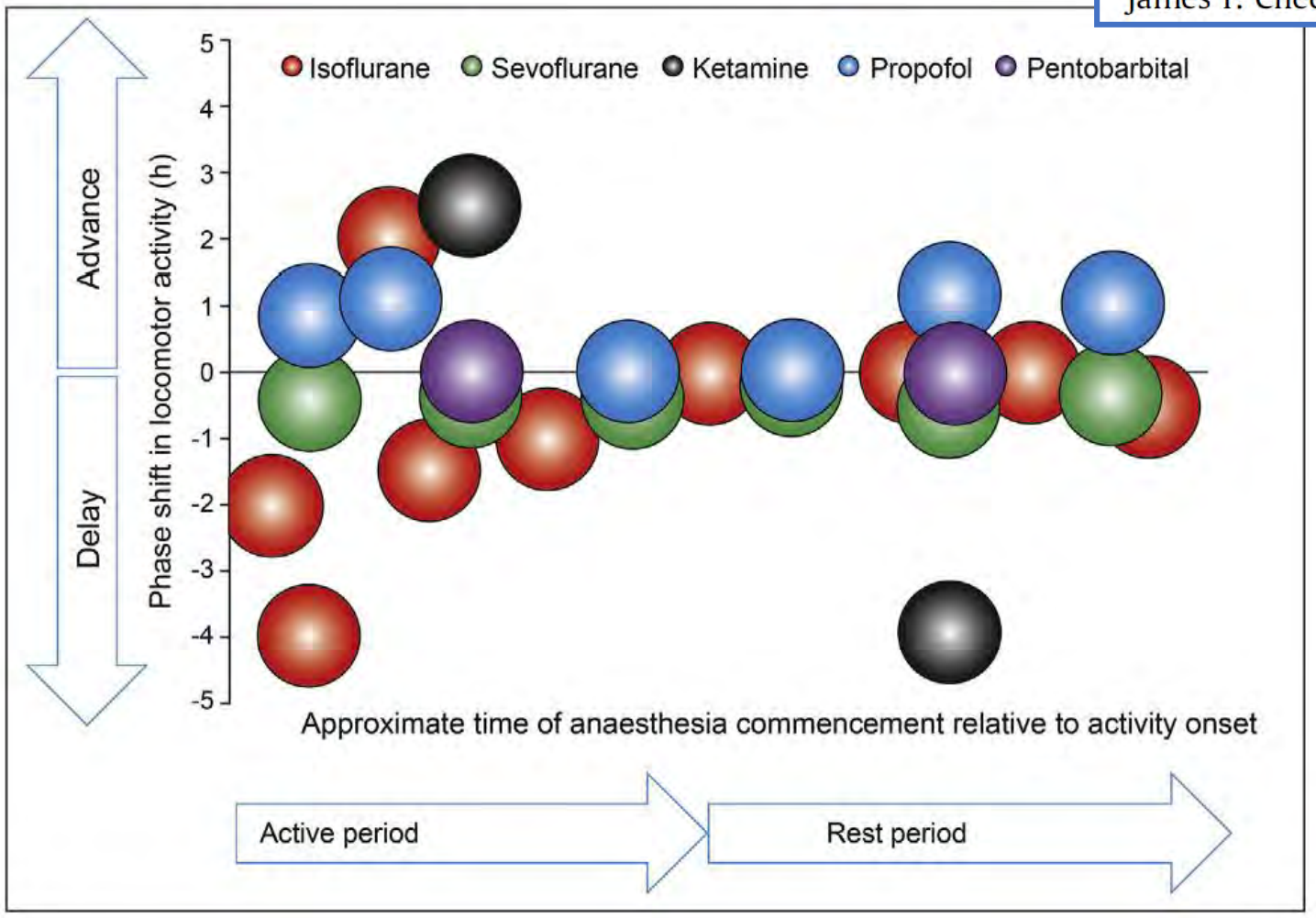
www.theage.com.au

Facteurs favorisants: les hypnotiques

CLINICAL REVIEW

How does general anaesthesia affect the circadian clock?

Raewyn C. Poulsen [a], Guy R. Warman [b], Jamie Sleigh [c], Nicola M. Ludin [b], James F. Cheeseman [b,*]



Poulsen RC, et al. Sleep Med Rev 2016

Facteurs favorisants: les hypnotiques

Desynchronization of Daily Rest–Activity Rhythm in the Days Following Light Propofol Anesthesia for Colonoscopy

G Dispersyn[1–3], Y Touitou[1], O Coste[2], L Jouffroy[4], JC Lleu[4], E Challet[5] and L Pain[3]

Table 1 Diurnal and nocturnal rest duration as assessed by actigraphy during the reference period (mean value of 2 days), the day of light propofol anesthesia, and the 2 days following light propofol anesthesia ($n = 17$)

	Light propofol anesthesia			
	Reference period (24 h)	Day 0 (18 h)	Day 1 (24 h)	Day 2 (24 h)
Nocturnal rest	07:43 (41)	07:47 (74)	07:53 (57)	07:31 (49)
Diurnal rest	00:37 (32)	02:48 (70)*	01:13 (86)*	00:25 (49)

Mean values are expressed as hours:minutes, SD as minutes.

*Value statistically different from the value for the reference period.

Dispersyn et al. Clin Pharmacol Ther 2009

CHRONOBIOLOGY INTERNATIONAL
https://doi.org/10.1080/07420528.2018.1499107

Taylor & Francis
Taylor & Francis Group

Short-term propofol anaesthesia down-regulates clock genes expression in the master clock

Nawfel Ben-Hamouda [a,b], Vincent-Joseph Poirel[a], Garance Dispersyn[a,c], Paul Pévet[a], Etienne Challet [a], and Laure Pain[a,d]

INCI
Institut des Neurosciences Cellulaires et Intégratives

cnrs

UNIVERSITÉ DE STRASBOURG

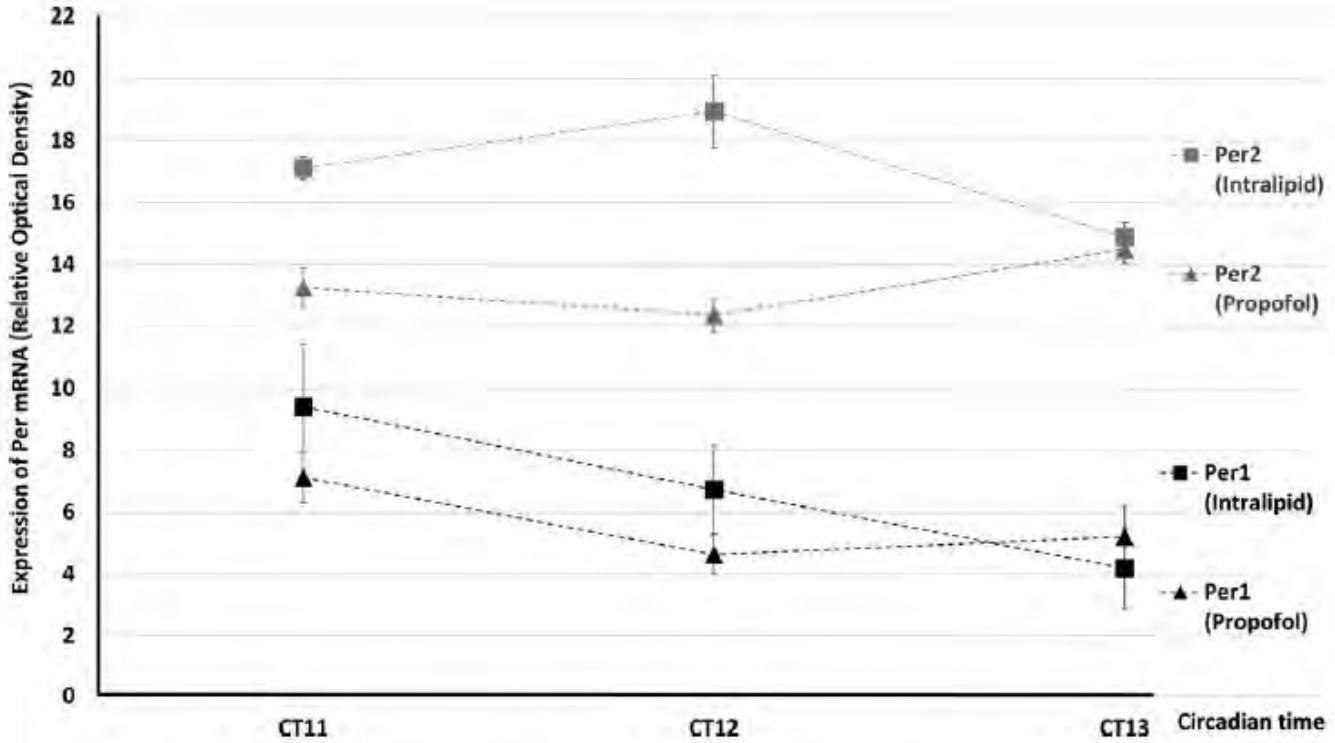
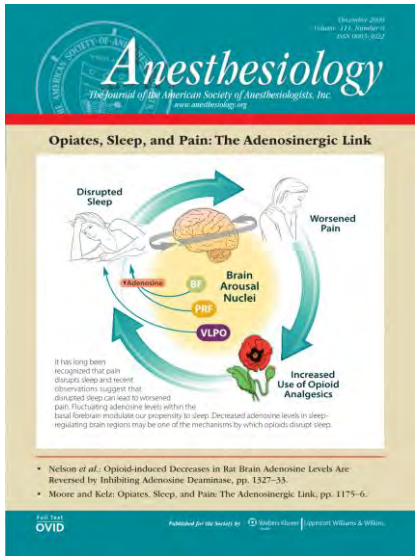


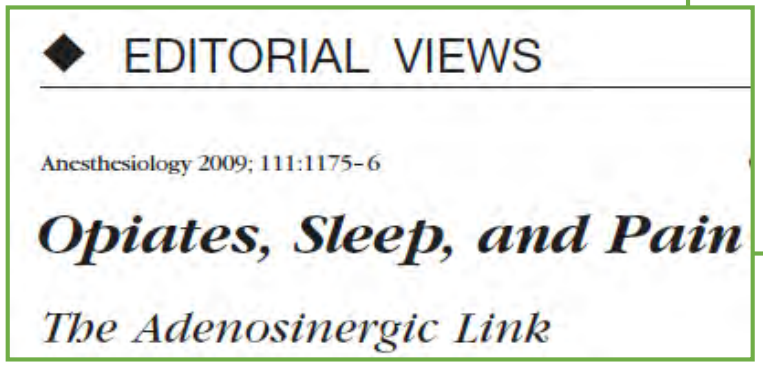
Figure 1. Effect of propofol anesthesia on the expression of Per1 and Per2 mRNA in the SCN of rats at different circadian times. For Per1: propofol group n=15, Intralipid® group n=12. For Per2: propofol group n=14, Intralipid® group n=12).

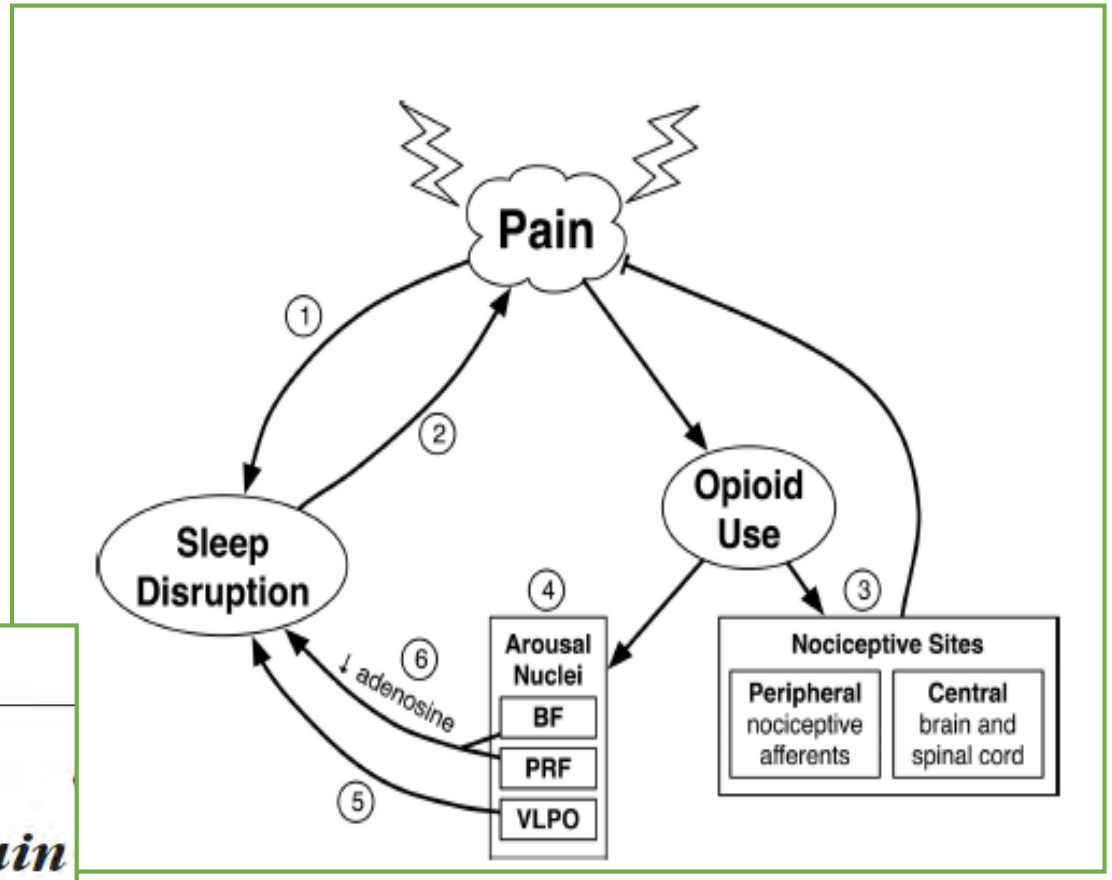
Ben-Hamouda N, et al. Chronobiol Int 2018

canton de vaud

Facteurs favorisants: les opiacés







Moore JT, Kelz MB. Anesthesiology 2009

Facteurs favorisants: autres médicaments

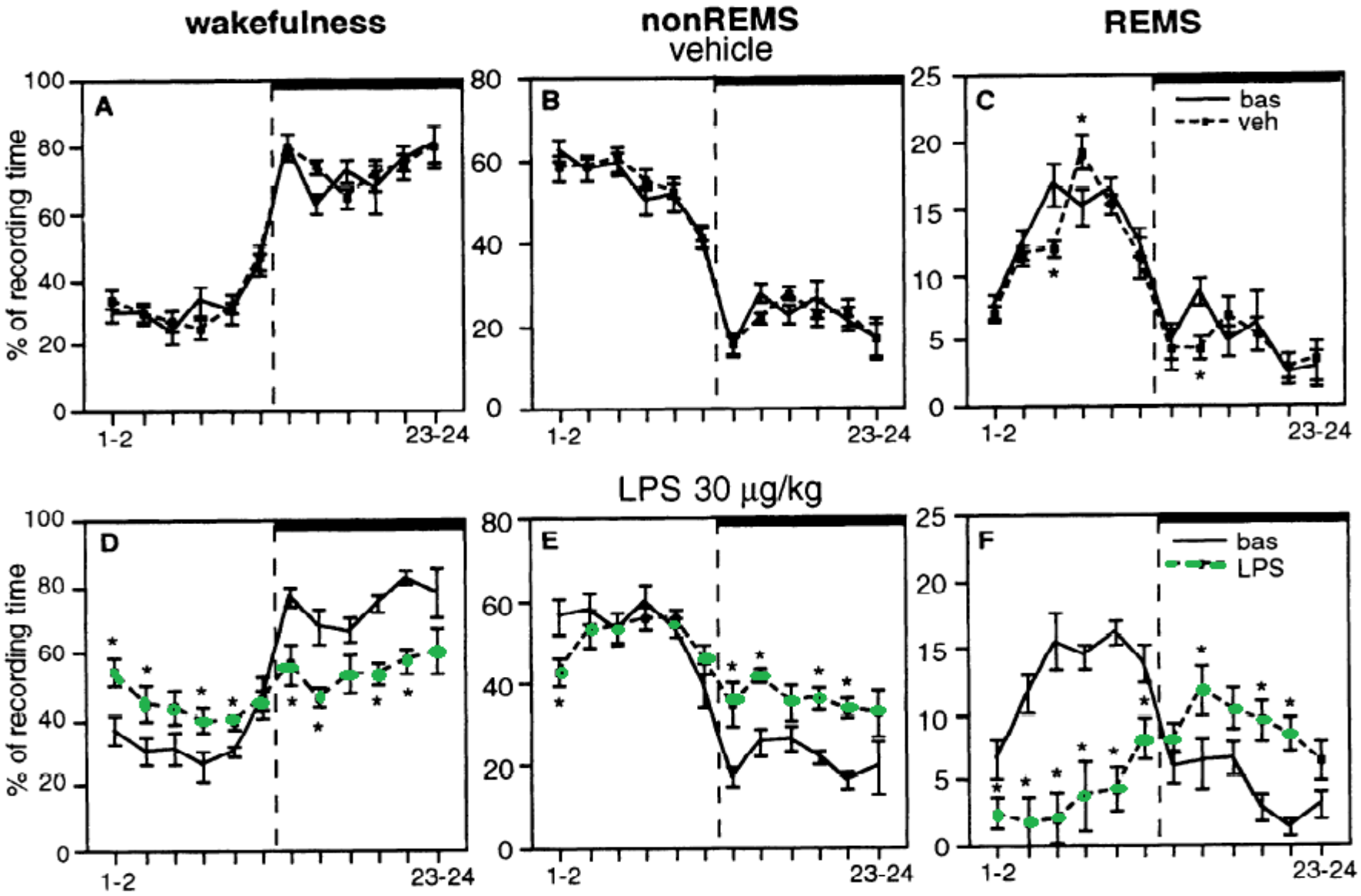
Drugs commonly used in ICU and their effects on sleep pattern.

Drug Class or Individual Drug	Sleep Disorder Induced or Reported	Possible Mechanism
Benzodiazepines	↓ REM, ↓ SWS	Gamma aminobutyric acid type A receptor stimulation
Opioids	↓ REM, ↓ SWS	μ receptor stimulation
Clonidine	↓ REM	α_2 receptor stimulation
Non steroidal anti-inflammatory drugs	↓ TST, ↓ SE	Prostaglandin synthesis inhibition
Norepinephrine/Epinephrine	Insomnia, ↓ REM, ↓ SWS	α_1 receptor stimulation
Dopamine	Insomnia, ↓ REM, ↓ SWS	D_2 receptor stimulation/α_1 receptor stimulation
β-Blockers	Insomnia, ↓ REM, Nightmares	Central nervous system β-blockade by lipophillic agents
Amiodarone	Nightmares	Unknown mechanism
Corticosteroids	Insomnia, ↓ REM, ↓ SWS	Reduced melatonin secretion
Aminophylline	Insomnia,↓ REM, ↓ SWS, ↓ TST, ↓ SE	Adenosine receptor antagonism
Quinolones	Insomnia	Gamma aminobutyric acid type A receptor inhibition
Tricyclic antidepressants	↓ REM	Antimuscarinic activity and α_1 receptor stimulation
Selective serotonin reuptake inhibitors	↓ REM, ↓ TST, ↓ SE	Increased serotonergic activity
Phenytoin	↑ Sleep Fragmentation	Inhibition of neuronal calcium influx
Phenobarbital	↓ REM	Increased gamma aminobutyric acid type A activity
Carbamazepine	↓ REM	Adenosine receptor stimulation and/or serotonergic activity

REM, rapid eye movement; SWS, slow wave sleep; TST, total sleep time; SE, sleep efficiency.

Bourne et al. Anaesthesia 2004

Facteurs favorisants: le sepsis



Effet de l'injection de LPS

Facteurs favorisants: la ventilation mécanique

Patient, N	Stage 1, %	Stage 2, %	Stage 3 and 4, mins	Rapid Eye Movement, %	Fragmentation Index
1	2	83	102	1	15
2	1	64	119	18	25
3	5	57	246	10	35
4	8	68	73	0	41
5	10	66	98	7	41
6	7	64	67	13	53
7	8	48	91	7	37
8	1	51	178	13	67
9	17	49	63	15	20
10	10	47	119	12	19
11	4	49	300	11	29
12	3	88	54	0	11
13	15	41	151	11	51
14	16	74	31	5	14
15	8	79	35	2	23
Median [25–75th percentiles]	8 [3–11]	63 [48–74]	98 [63–151]	10 [2–13]	29 [19–41]

Conclusions: **In conscious, mechanically ventilated patients, sleep architecture was highly abnormal, with a short REM stage and a high degree of fragmentation. The ventilatory mode did not influence sleep pattern, arousals, awakenings, and ineffective efforts.**

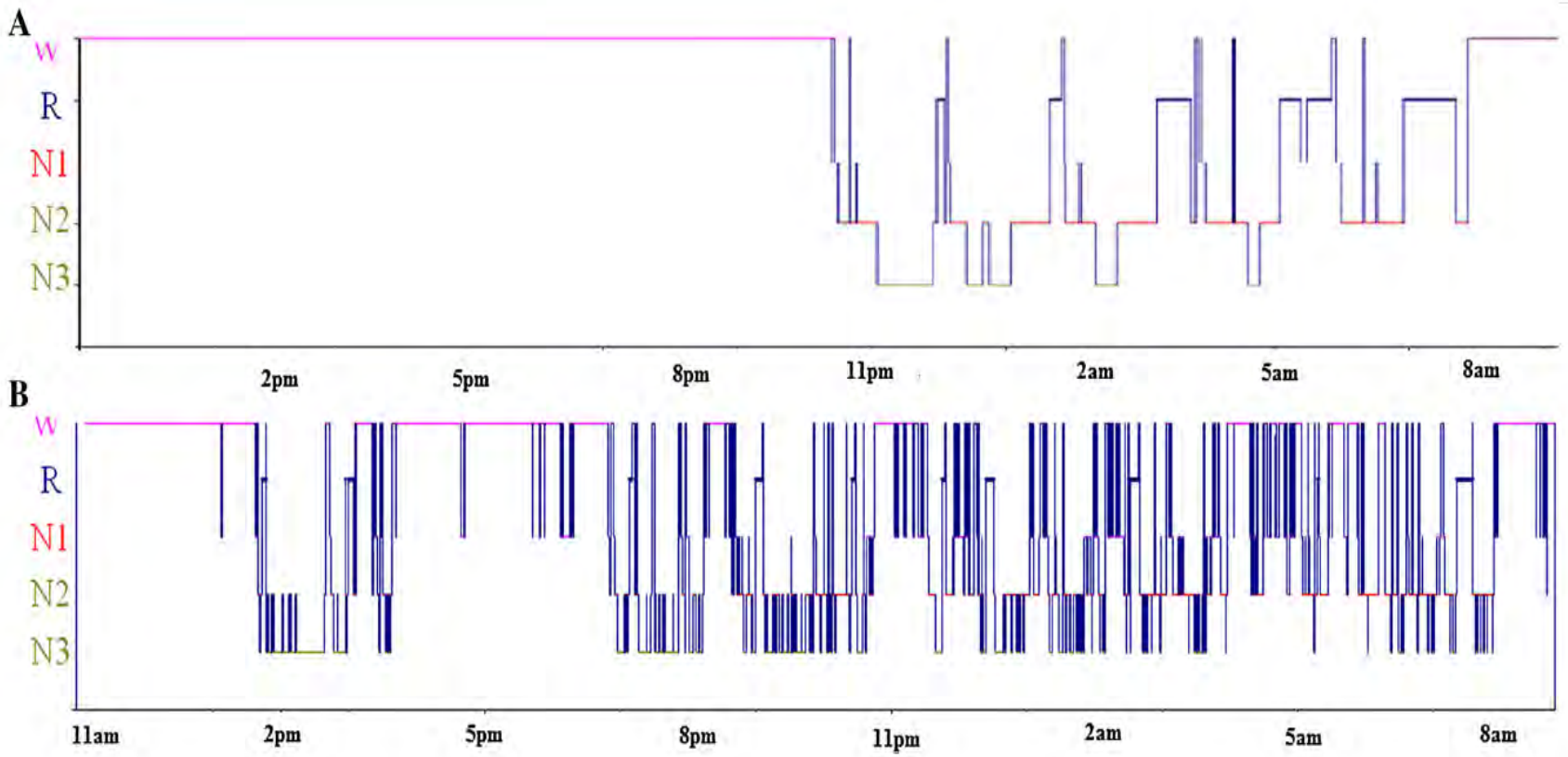
Cabello et al. Crit Care Med 2008

Intensive Care Med (2016) 42:531–541
DOI 10.1007/s00134-015-4179-1

REVIEW

Nuttapol Rittayamai
Elizabeth Wilcox
Xavier Drouot
Sangeeta Mehta
Alberto Goffi
Laurent Brochard

Positive and negative effects of mechanical ventilation on sleep in the ICU: a review with clinical recommendations



Normal hypnogram from a 62-year-old healthy subject.

N3 20% REM 26%

sleep hypnogram in a non-sedated 61-year-old patient during the weaning phase

N3 17% REM 7%

Rittayamai N, et al. Intensive Care Med 2016

Traitement non-pharmacologique

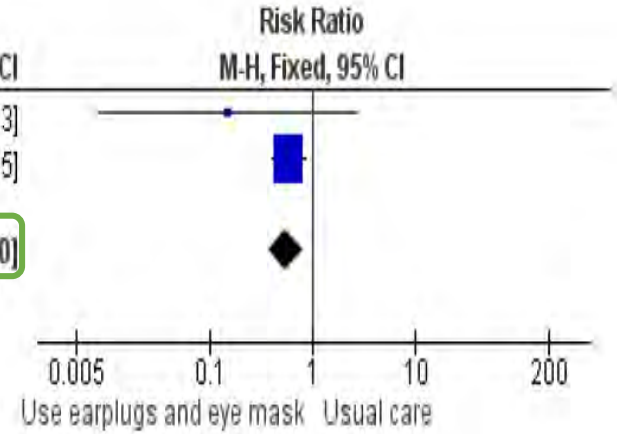
Non-pharmacological interventions for sleep promotion in the intensive care unit (Review)

Hu RF, Jiang XY, Chen J, Zeng Z, Chen XY, Li Y, Huining X, Evans DJW

Cochrane Library
Cochrane Database of Systematic Reviews

Study or Subgroup	Ear plugs/eye masks Events	Total	Usual care Events	Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Le Guen 2014	0	20	3	21	7.8%	0.15 [0.01, 2.73]
Van Rompaey 2012	24	69	40	67	92.2%	0.58 [0.40, 0.85]
Total (95% CI)		89		88	100.0%	**0.55 [0.38, 0.80]**
Total events	24		43			

Heterogeneity: Chi² = 0.87, df = 1 (P = 0.35); I² = 0%
Test for overall effect: Z = 3.11 (P = 0.002)

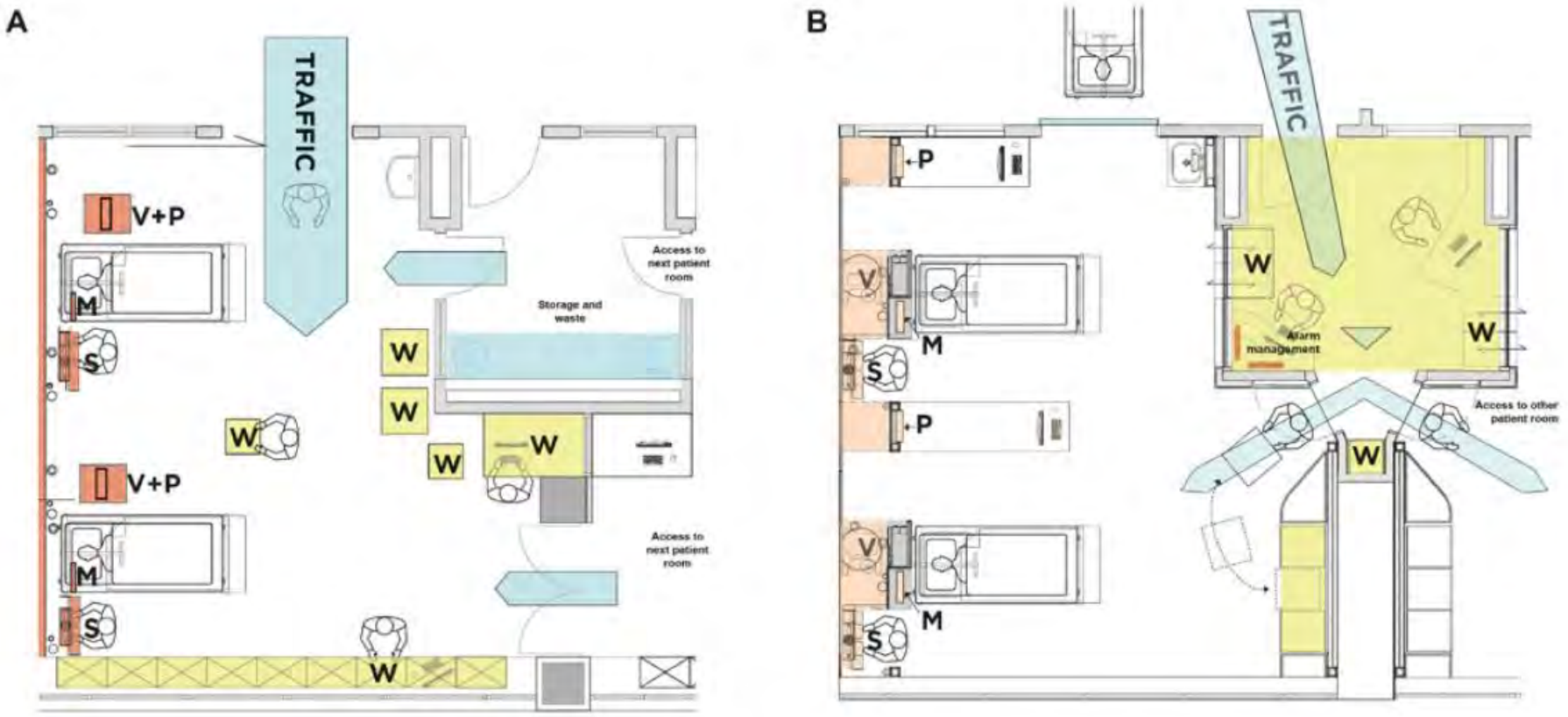


Our findings suggest that non-pharmacological interventions, such as the use of earplugs or eye masks or both, may have some beneficial effects on sleep promotion and potentially decrease the risk of delirium in intensive care unit (ICU) adult patients.

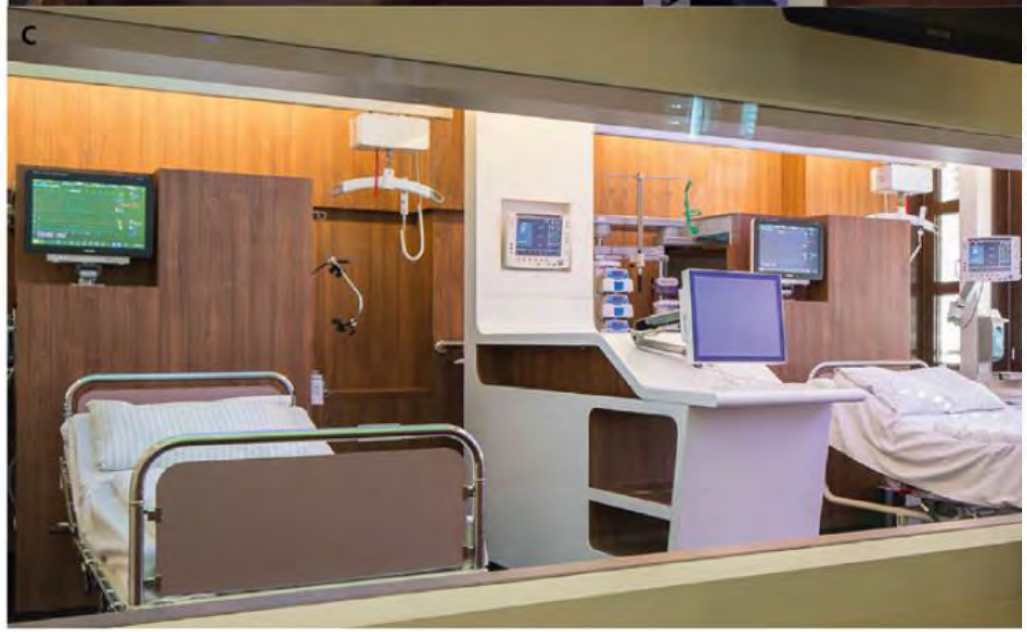
Hu RF et al. Cochrane Database Syst Rev 2015

Feasibility of noise reduction by a modification in ICU environment

To cite this article: A Luetz *et al* 2016 *Physiol. Meas.* **37** 1041

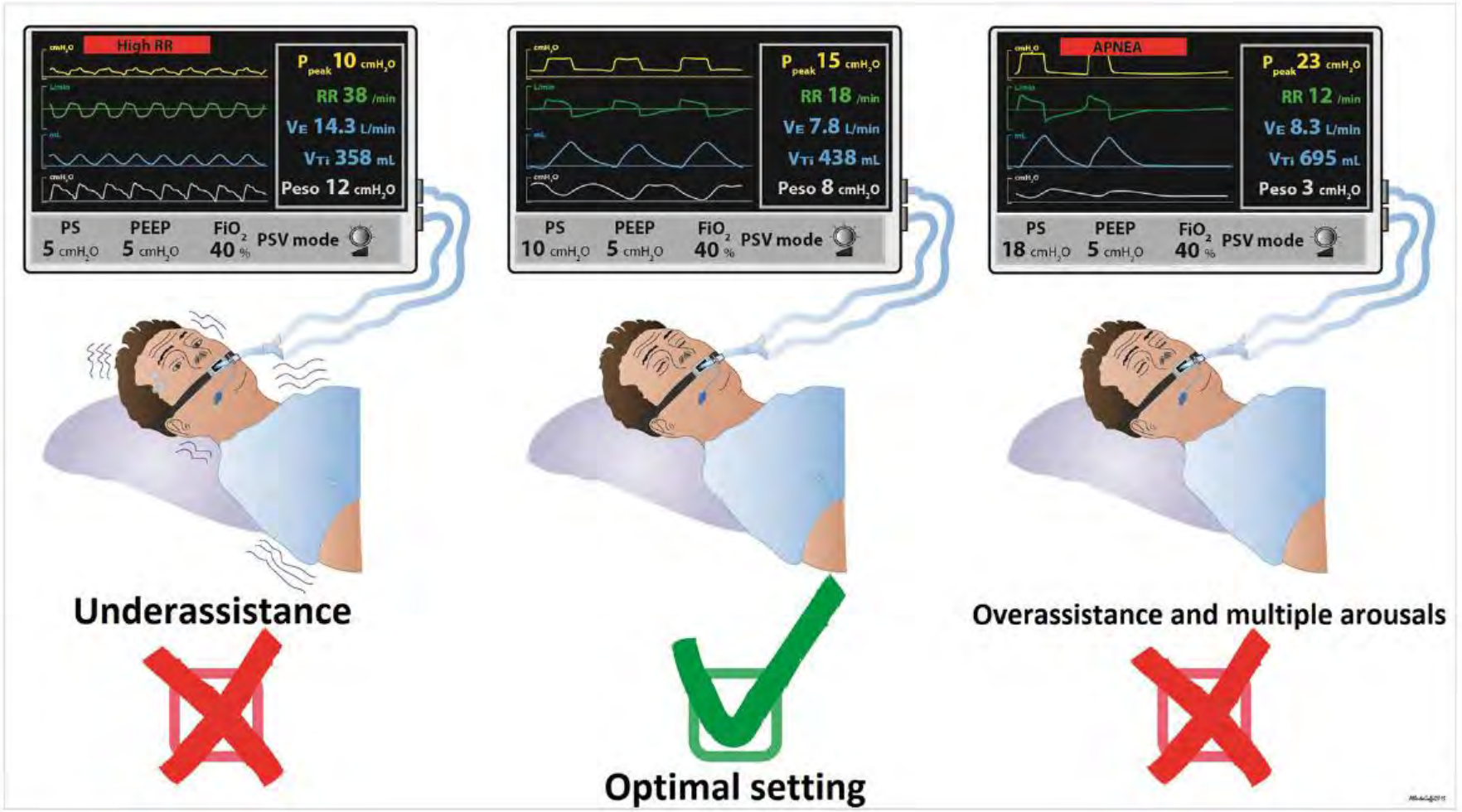


Luetz A et al. Physiol Meas 2016



Luetz A et al. Physiol Meas 2016

Ventilation



Rittayamai N, et al. Intensive Care Med 2016

Approche psychologique

Randomized clinical trial

Randomized clinical trial of psychological support and sleep adjuvant measures for postoperative sleep disturbance in patients undergoing oesophagectomy

M. Scarpa[1], E. Pinto[1], E. Saraceni[3], F. Cavallin[1], M. Parotto[5], R. Alfieri[1], M. T. Nardi[2], M. R. Marchi[4], M. Cagol[1] and C. Castoro[1], on behalf of the QOLEC Group*

Conclusion: Perioperative psychological support reduces impairment in quality of life and quality of sleep after oesophagectomy. Registration number: NCT01738620 (http://www.clinicaltrials.gov).

Scarpa M, et al. Br J Surg 2017

Traitement pharmacologique

Time to Stop Counting Sheep in the ICU

Dries Testelmans, MD, PhD
Bart Vrijsen, MSc
Bertien Buyse, MD, PhD
Respiratory Division
University Hospitals Leuven
Leuven, Belgium

Testelmans D, et al. Crit Care Med 2013

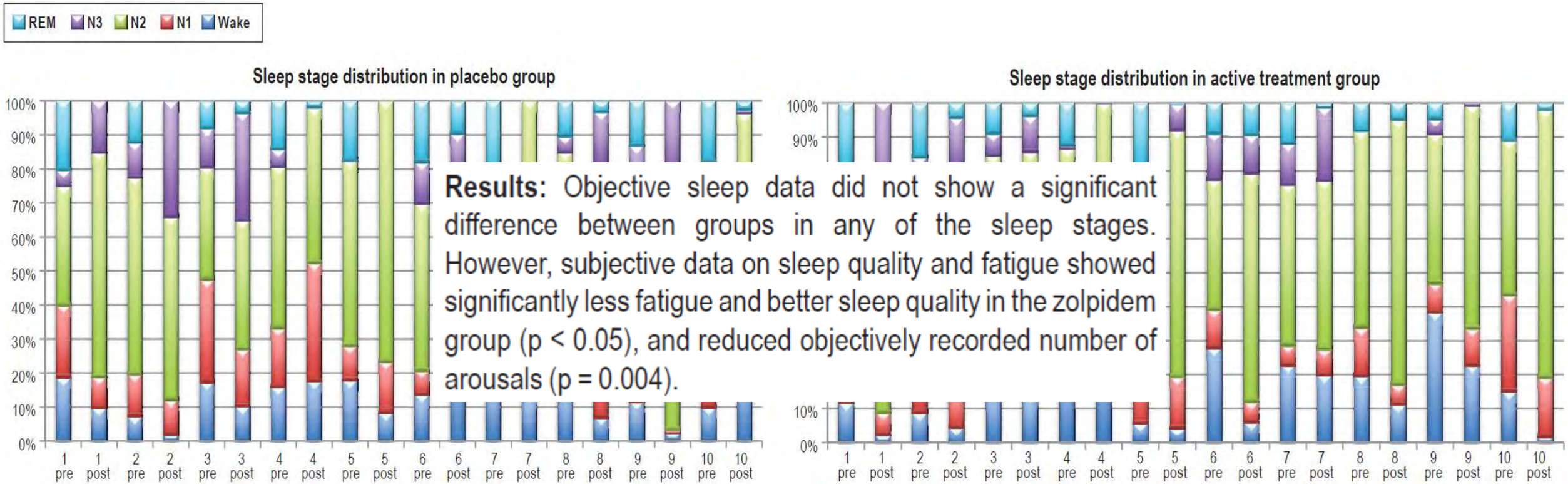
Zolpidem

Journal of Clinical Sleep Medicine

Postoperative Sleep Disturbances after Zolpidem Treatment in Fast-Track Hip and Knee Replacement

Lene Krenk, M.D., Ph.D.[1,2]; Poul Jennum, M.D., Ph.D.[3]; Henrik Kehlet, M.D., Ph.D.[1,2]

[1]Section of Surgical Pathophysiology, Rigshospitalet, University of Copenhagen, Denmark; [2]Lundbeck Centre for Fast-Track Hip and Knee Arthroplasty, Denmark; [3]Danish Centre for Sleep Medicine, Department of Clinical Neurophysiology, Glostrup Hospital, and Centre for Healthy Ageing, Faculty of Health, University of Copenhagen, Denmark



Results: Objective sleep data did not show a significant difference between groups in any of the sleep stages. However, subjective data on sleep quality and fatigue showed significantly less fatigue and better sleep quality in the zolpidem group ($p < 0.05$), and reduced objectively recorded number of arousals ($p = 0.004$).

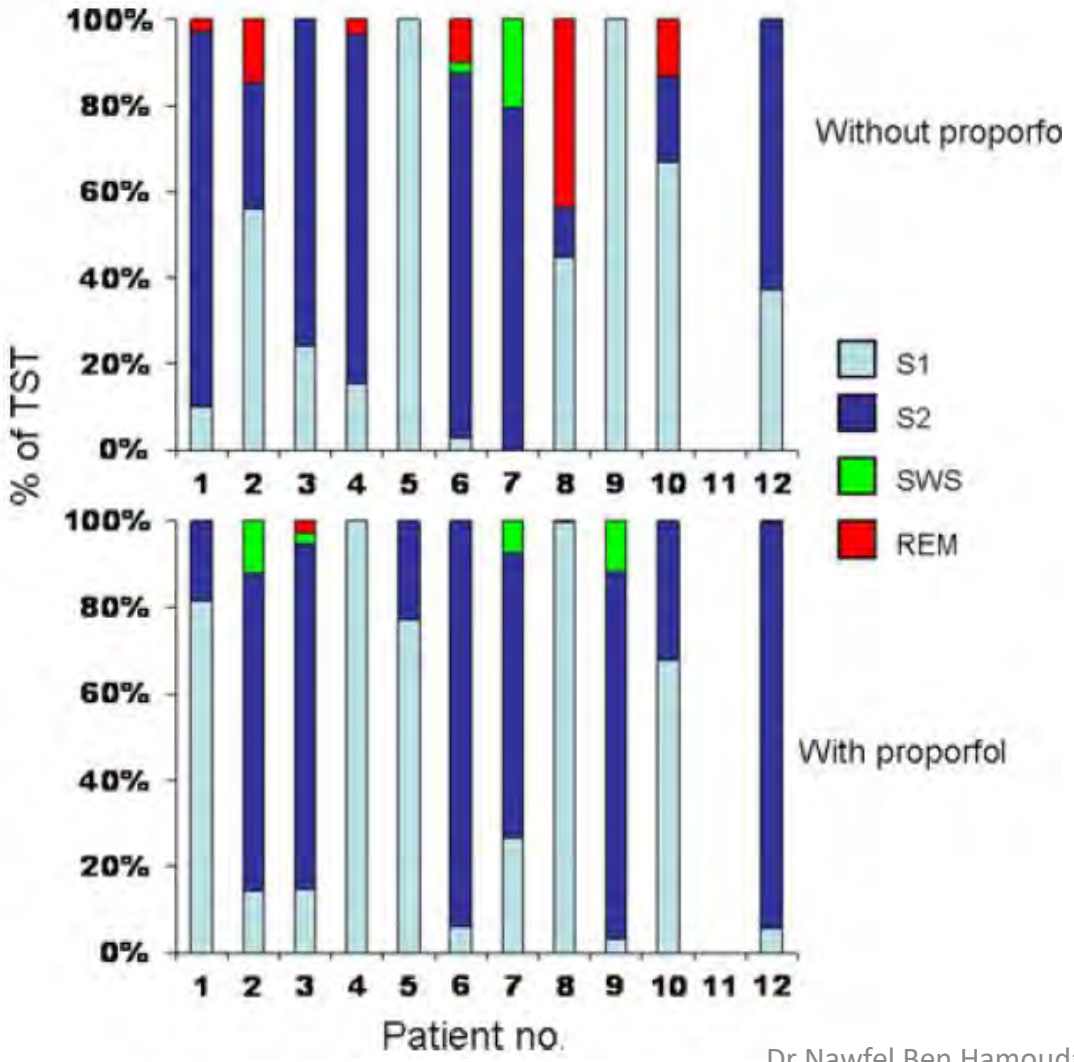
n = 20 (≥ 60 years) THA/TKA spinal anesthesia
double-blind, randomized
zolpidem 10 mg vs placebo

Krenk et al. J Clin Sleep Med 2014

Propofol

Eumorfia Kondili
Christina Alexopoulou
Nectaria Xirouchaki
Dimitris Georgopoulos

Effects of propofol on sleep quality in mechanically ventilated critically ill patients: a physiological study



N = 12 MV patients
PSG x 2 nights
Propofol vs placebo
Ramsay 3

Conclusions: In critically ill patients ventilated on assisted modes, propofol administration to achieve the recommended level of sedation suppresses the REM sleep stage and further worsens the poor sleep quality of these patients.

Sleep architecture in each patient

Kondili et al. Intensive Care Med 2012

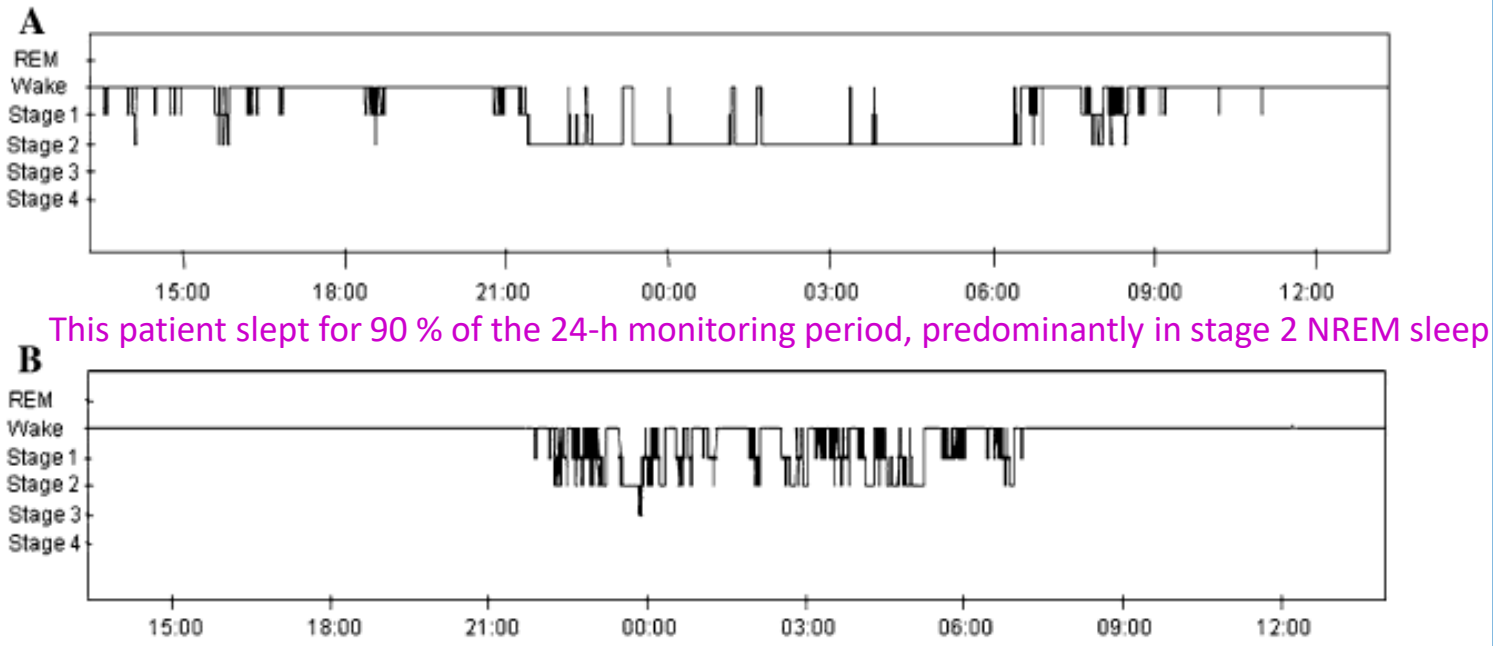
Dexmedtomidine

Intensive Care Med (2012) 38:1982–1989
DOI 10.1007/s00134-012-2685-y

ORIGINAL

Jun Oto
Katsunori Yamamoto
Shigefumi Koike
Mutsuo Onodera
Hideaki Imanaka
Masaji Nishimura

Sleep quality of mechanically ventilated patients sedated with dexmedetomidine



This patient slept for 90 % of the 24-h monitoring period, predominantly in stage 2 NREM sleep

The patient had isolated episodes of stage 1 and 2 NREM sleep,
but was awake for most of the 24-h monitoring period

Hypnograms of patients sedated with dexmedetomidine

PSG x 24h in MV patients

Dexmedetomidine 0.2-0.7 µg/kg/h ad RASS -1/-4

Conclusions: In mechanically ventilated patients, nighttime infusion of dexmedetomidine preserved the day-night cycle of sleep but induced severely disturbed sleep architecture without evidence of SWS or REM sleep.

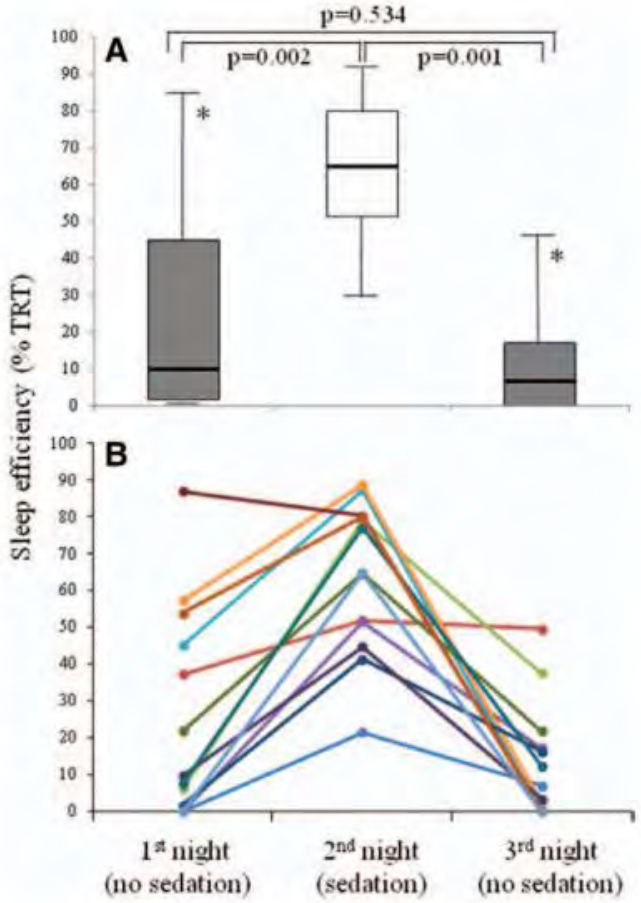
Oto et al. Intensive Care Med 2012

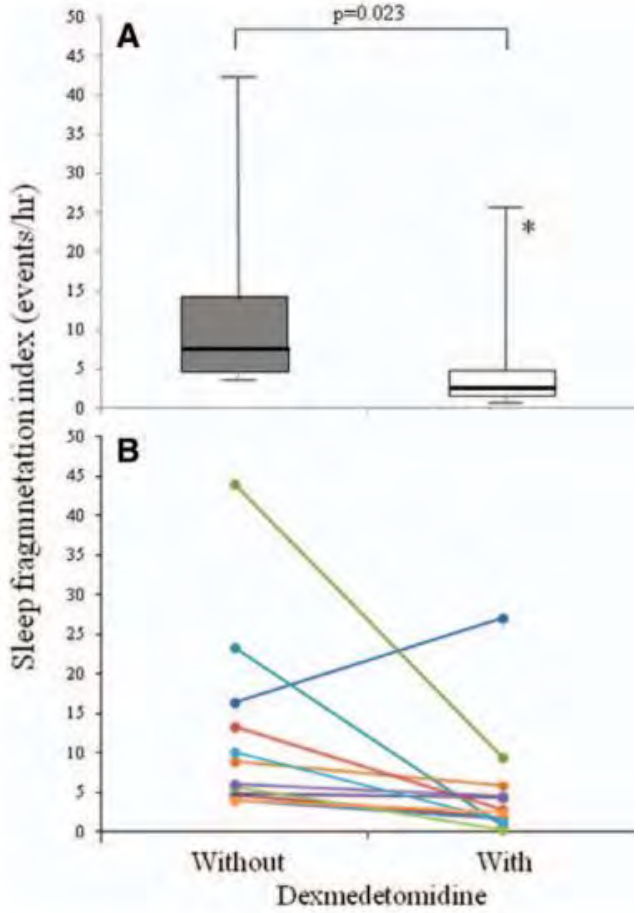
Dexmedtomidine

Effects of Dexmedetomidine on Sleep Quality in Critically Ill Patients

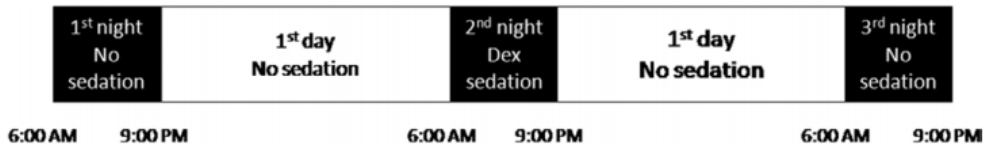
A Pilot Study

Christina Alexopoulou, M.D., Eumorfia Kondili, M.D., Eleni Diamantaki, M.D., Charalambos Psarologakis, M.D., Sofia Kokkini, M.D., Maria Bolaki, M.D., Dimitris Georgopoulos, M.D., Ph.D.





Dexmedetomidine 0.6 µg/kg/h RASS-1/-2
N = 13 MV > 48h
PSG x 57H



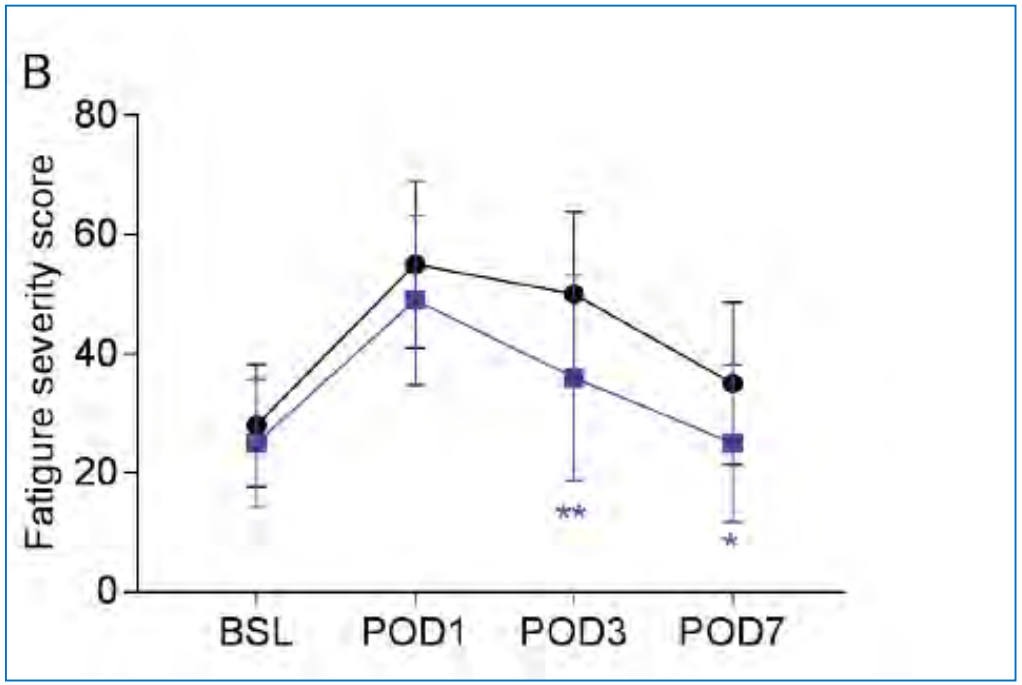
Conclusion: In highly selected critically ill patients, dexmedetomidine infusion during the night to achieve light sedation improves sleep by increasing sleep efficiency and stage 2 and modifies the 24-h sleep pattern by shifting sleep mainly to the night.

Alexopoulou C et al. Anesthesiology 2014

Dexmedtomidine

Intraoperative use of dexmedetomidine promotes postoperative sleep and recovery following radical mastectomy under general anesthesia

Cunxian Shi[1,*], Jin Jin[1,*], Qiang Pan[2], Shan Song[1], Kezhong Li[1], Jiahai Ma[1], Tao Li[1] and Zhi Li[1]



N = 47
propofol/remifentanil vs
propofol/remifentanil/Dexmedetomidine

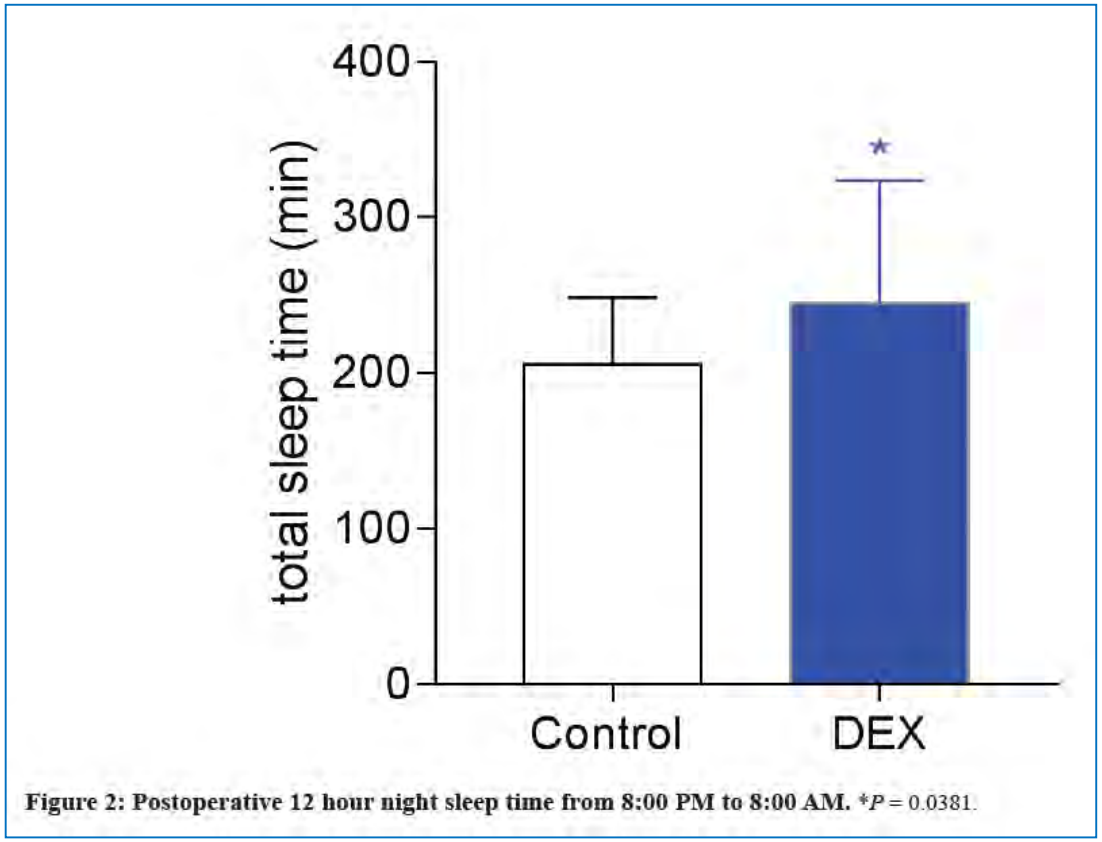
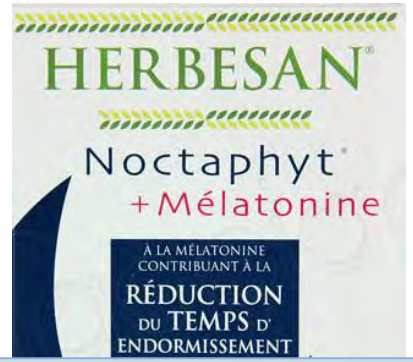


Figure 2: Postoperative 12 hour night sleep time from 8:00 PM to 8:00 AM. *$P = 0.0381$.

Shi et al. Oncotarget 2017

Melatonin



August 2005 • www.clinicalneurologynews.com

Sleep Disorders

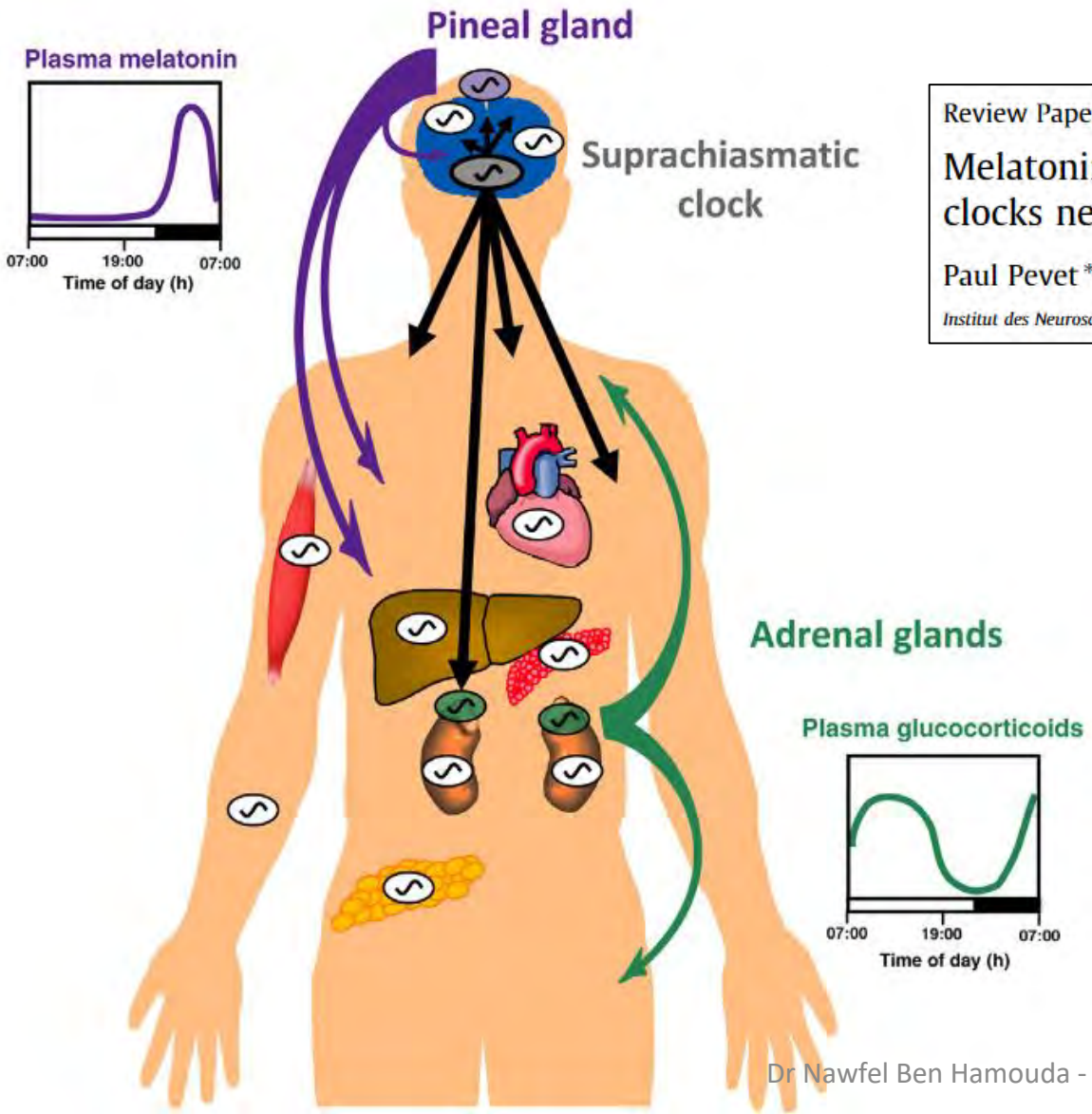
FDA Approves Melatonin Agonist for Insomnia

BY ELIZABETH MECHCATIE

Senior Writer

http://www.parapharmacie-naocia.com

Melatonin



Review Paper

Melatonin: Both master clock output and internal time-giver in the circadian clocks network

Paul Pevet *, Etienne Challet

Institut des Neurosciences Cellulaires et Intégratives, Département Neurobiologie des Rythmes, UPR 3212 CNRS, Université de Strasbourg, France

Pevet P & Challet E. J Physiol Paris 2011

Melatonin

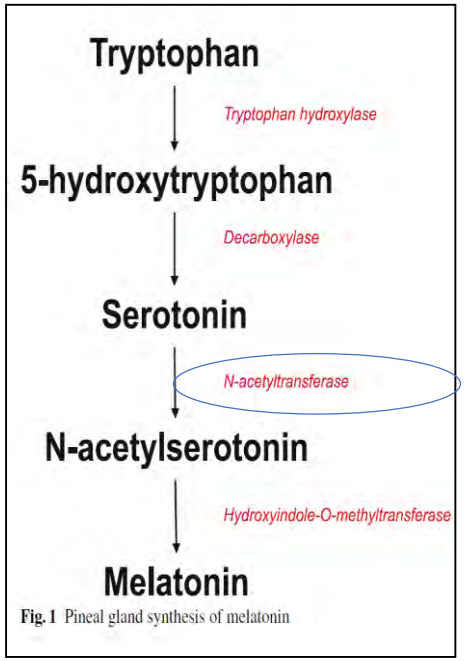


Fig. 1 Pineal gland synthesis of melatonin

Drug group/drug	Proposed mechanism	Effect on melatonin serum concentration
Local anaesthetics	Inhibition of protein kinase C	–
Opioids	Opioid-mediated increase in NAT	+
Beta-blockers	CNS β_1-receptor blockade	–
Benzodiazepines	GABA receptor agonism	–
Corticosteroids	Decreased NAT activity	–
Calcium channel blockers (dihydropyridine)	Decreased NAT activity	–
Nonsteroidal anti-inflammatory drugs	Inhibition of prostaglandin synthesis	–
Clonidine	α_2 receptor agonism	–
Sodium valproate	Increased GABA levels	–

 Bourne RS, Mills GH. Intensive Care Med 2006

Melatonin

Melatonin for the promotion of sleep in adults in the intensive care unit (Review)

Cochrane Library

Lewis SR, Pritchard MW, Schofield-Robinson OJ, Alderson P, Smith AF

Authors' conclusions

We found insufficient evidence to determine whether administration of melatonin would improve the quality and quantity of sleep in ICU patients. We identified sparse data, and noted differences in study methodology, in ICU sedation protocols, and in methods used to measure and report sleep.

Outcomes	Impacts	No of participants (studies)
Quantity and quality of sleep as measured through reports of participants or of family members or by personnel assessments Data collected at end of follow-up	In 1 study, participants completed the RCSQ and study authors reported no difference in SEI scores between groups. This was consistent with nurse assessment for which study authors also reported no difference in SEI scores between groups 2 studies reported no difference in duration of sleep observed by nurses	139 (3 studies)
Quantity and quality of sleep as measured by PSG, actigraphy, BIS, or EEG Data collected at end of follow-up	In 1 study, investigators used BIS and actigraphy to record sleep. Study authors reported no difference in SEI scores with both tools. Study authors also reported longer sleep in participants given melatonin which was not statistically significantly different, and also reported evidence of improved sleep in participants given melatonin from analysis of AUC using BIS data 1 study used PSG, with a large loss of participant data at follow-	37 (2 studies)

3-10 mg melatonin
At 8 or 9 pm
3 - 7 nights
Small n

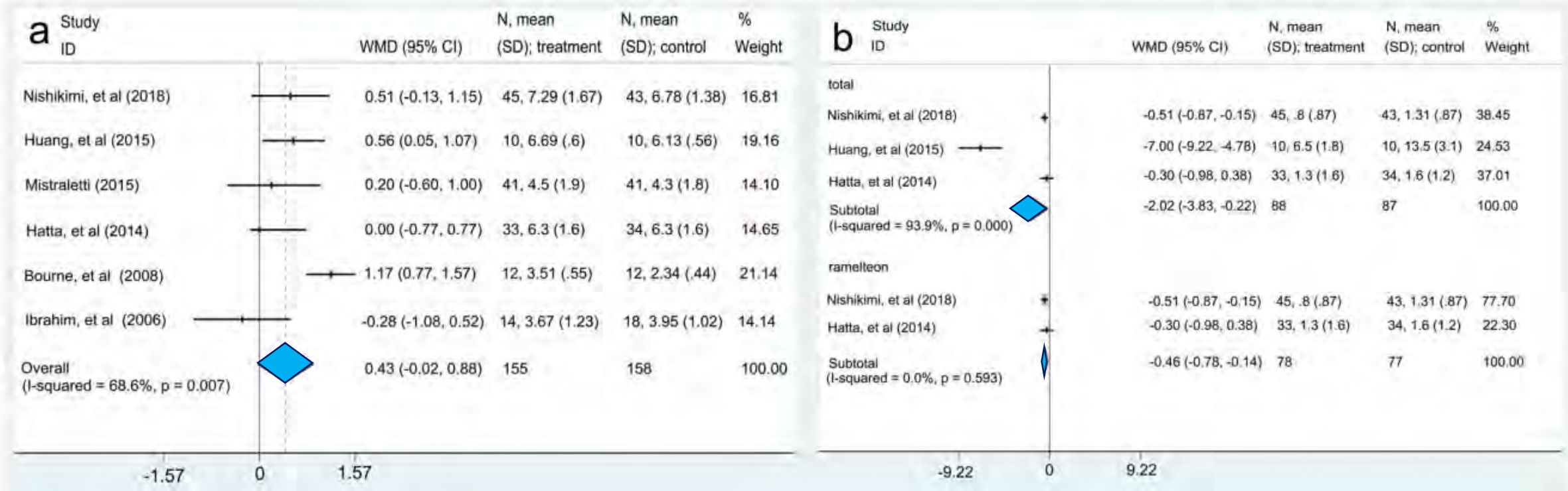
Lewis SR, et al. Cochrane Database Syst Rev 2018

Melatonin

SLEEP BREATHING PHYSIOLOGY AND DISORDERS • REVIEW

Prophylactic use of exogenous melatonin and melatonin receptor agonists to improve sleep and delirium in the intensive care units: a systematic review and meta-analysis of randomized controlled trials

Qingyu Zhang[1] · Fuqiang Gao[2] · Shuai Zhang[3] · Wei Sun[4] · Zirong Li[2]



Eight RCTs were included in the qualitative analysis. Administration of exogenous melatonin and melatonin receptor agonists was associated with a trend towards elongated duration of sleep (pooled weighted mean difference/WMD = 0.43; 95% confidence intervals/CIs, − 0.02~0.88, $p = 0.063$) and could decrease the number of awakenings per night (pooled WMD = − 2.03; 95% CIs, − 3.83~− 0.22, $p = 0.028$).

Zhang Q, et al. Sleep Breath 2019

Melatonin

British Journal of Anaesthesia **112** (1): 7–8 (2014)
doi:10.1093/bja/aet332

EDITORIAL III

Perioperative melatonin: not ready for prime time

L. P. H. Andersen*, J. Rosenberg and I. Gögenur

Department of Surgery, Herlev Hospital, University of Copenhagen, DK-2730 Herlev, Denmark

Why?

Melatonin

Br. J. clin Pharmac. (1985), **19**, 517–521

Plasma concentrations of melatonin in man following oral absorption of different preparations

M. ALDHOUS, C. FRANEY, J. WRIGHT, & J. ARENDT
Department of Biochemistry, Division of Clinical Biochemistry, University of Surrey, Guildford, Surrey, UK

Table 1 Areas under the plasma concentration curve (AUC, mean ± s.e. mean), calculated to the limit of detectability above basal melatonin concentrations following ingestion of 2 mg melatonin as gelatine capsules or corn oil preparation.

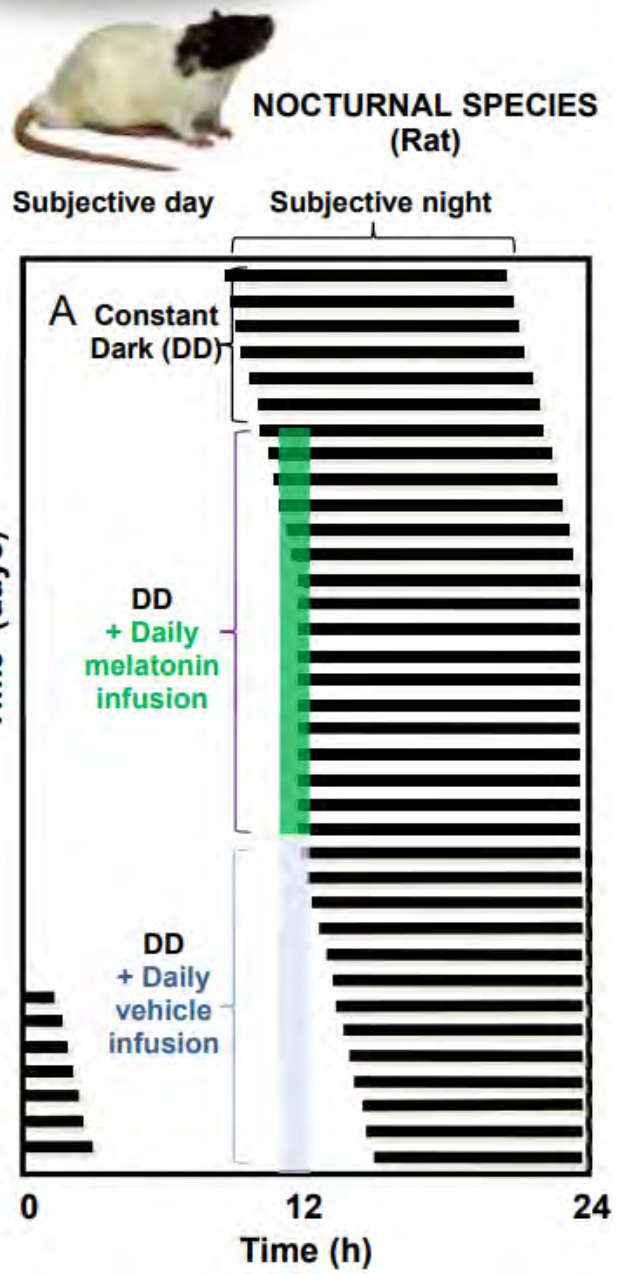
AUC (*pg ml^{-1} h*)			
Gelatine capsule		*Corn-oil preparation*	
Fed	*Fasting*	*Fed*	*Fasting*
8036 ± 2455*	3712 ± 703	5826 ± 2644*	3953 ± 1533

*$P < 0.05$, fed compared to fasting, significance level assessed by paired Student's *t*-test.

Fed/fasting state ?

Melatonin

Route of administration



The hormone melatonin: Animal studies

P. Pevet, Ph.D, Scientist *, P. Klosen, Ph.D, Scientist, M.P. Felder-Schmittbuhl, Ph.D, Scientist

Institute for Cellular and Integrative Neurosciences (UPR 3212), CNRS and University of Strasbourg, Strasbourg France

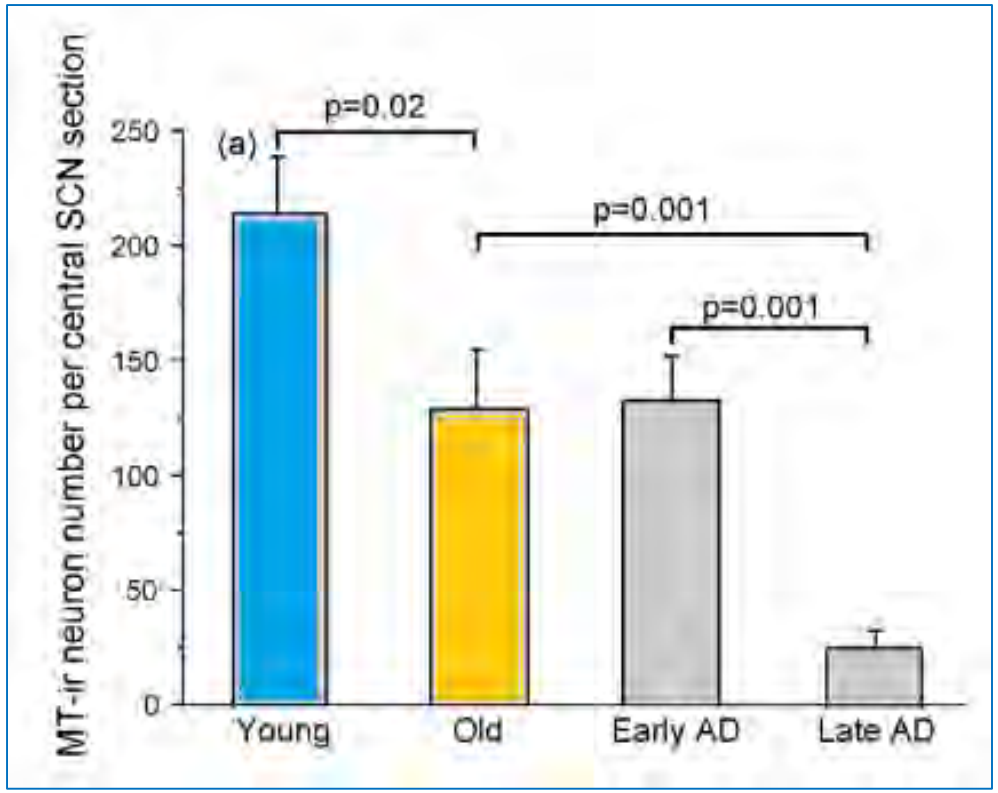
Pevet et al. Best Pract Res Clin Endocrinol Metab 2017

Melatonin

Patient selection

Decreased MT1 melatonin receptor expression in the suprachiasmatic nucleus in aging and Alzheimer's disease

Ying-Hui Wu [a], Jiang-Ning Zhou [b], Joop Van Heerikhuize [a], Ralf Jockers [c,d,e,f], Dick F. Swaab [a,*]



Wu H, et al. Neurobiol Aging 2007

Light

- A OPEN BLINDS
- A DIM LIGHTS, CLOSE BLINDS
- B EYE MASK

Noise

- A FAMILY VISITATION
- A QUIET TIME: SILENT ALARMS, DECREASE OVERHEAD PAGING, TURN OFF TV
- B EAR PLUGS, MUSIC THERAPY

Care Activities

- A MOBILIZATION
- A MASSAGE/RELAXATION
- A BUNDLE CARE ACTIVITIES, REDUCE VITALS AS APPROPRIATE
- B OVERNIGHT SLEEP ASSESSMENT: PATIENT REPORTED
- A OVERNIGHT SLEEP ASSESSMENT: CARE TEAM OBSERVATION
- C NUTRITION: OVERNIGHT FEEDS
- C VENTILATION REST FOR LONG-STAY PATIENTS ON MECHANICAL VENTILATION

Pharmaco-therapy

- A SEDATION HOLIDAY AND MEDICATIONS REVIEW
- C MELATONIN
- C NOCTURNAL PRECEDEX
- C ANTIPSYCHOTICS E.G. QUETIAPINE IF DELIRIOUS

0700 0800 0900 1000 1100 1200 1300 1400 1500 1600 1700 1800 1900 2000 2100 2200 2300 0000 0100 0200 0300 0400 0500 0600 0700

A For all patients B For non-delirious patients C Additional therapies to be considered and individualized

Lee EY & Wilcox ME.
Curr Op Pulm Med 2022

Conclusion

Importance du sujet

Conséquences court et moyen terme

Prévention