

SEDATIE OP DE IC

wake up, light sleeper or sleep tight

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“Onderzoek wijst uit dat na 15 minuten de aandacht al is weggezakt, tijdens de laatste 10 minuten wordt nog slechts ca. 20 procent van de stof onthouden.”

Dijk, L.A. van, G.C. van den Berg (2000) De monoloog doorbroken: effecten van een activerende collegereeks. Tijdschrift voor Hoger Onderwijs 18 (2), 76-91.

Daily Interruption of Sedative Infusions in Critically Ill Patients Undergoing Mechanical Ventilation

John P. Kress, M.D., Anne S. Pohlman, R.N., Michael F. O'Connor, M.D., and Jesse B. Hall, M.D.

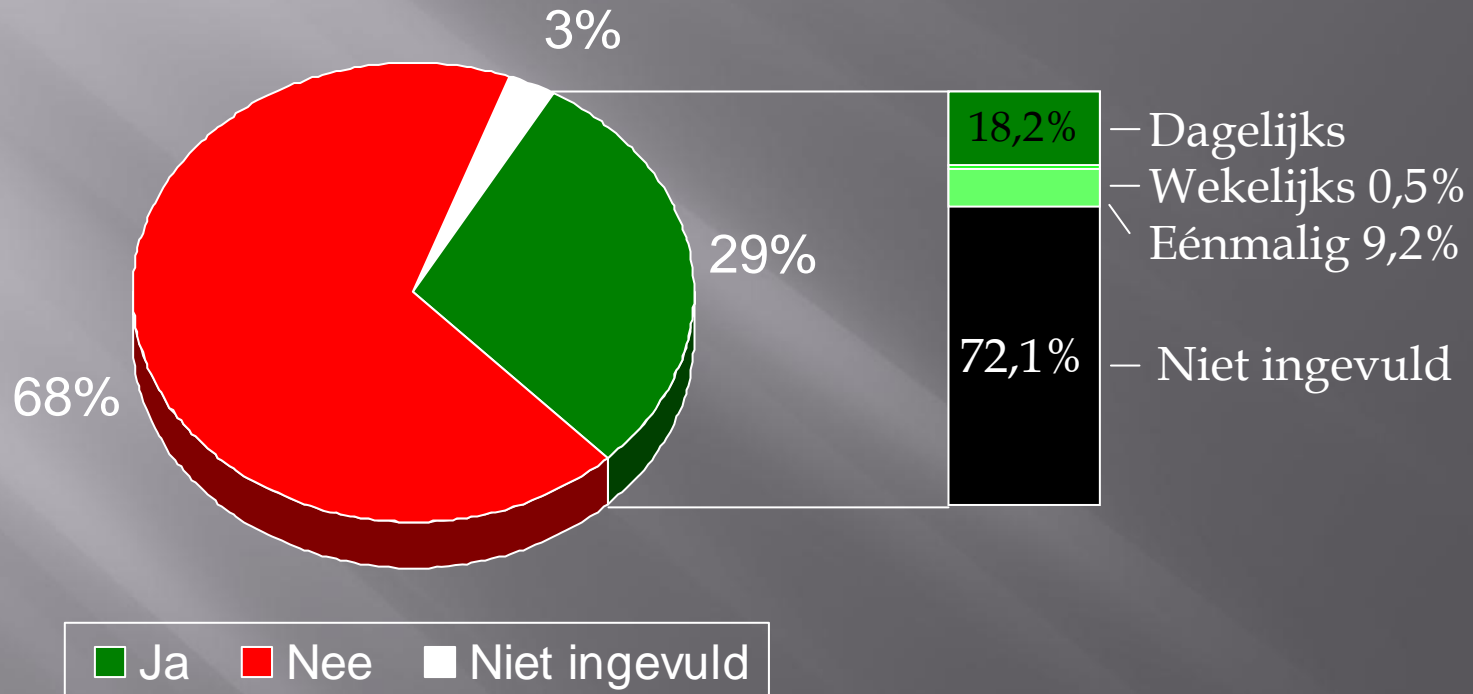
Conclusions In patients who are receiving mechanical ventilation, daily interruption of sedative-drug infusions decreases the duration of mechanical ventilation and the length of stay in the intensive care unit.



WES 13 maart 2008

Ziekenhuis	Wake up	Sedatie score
Amphia	nee	ja
AMC	zelden	ja
Arnhem	nee	ja
Dordrecht	nee	ja
Tilburg	nee	ja
SFG Rotterdam		
Ikazia		
MCRZ		
EMC		
Uw ziekenhuis	?	?

Wake-up calls





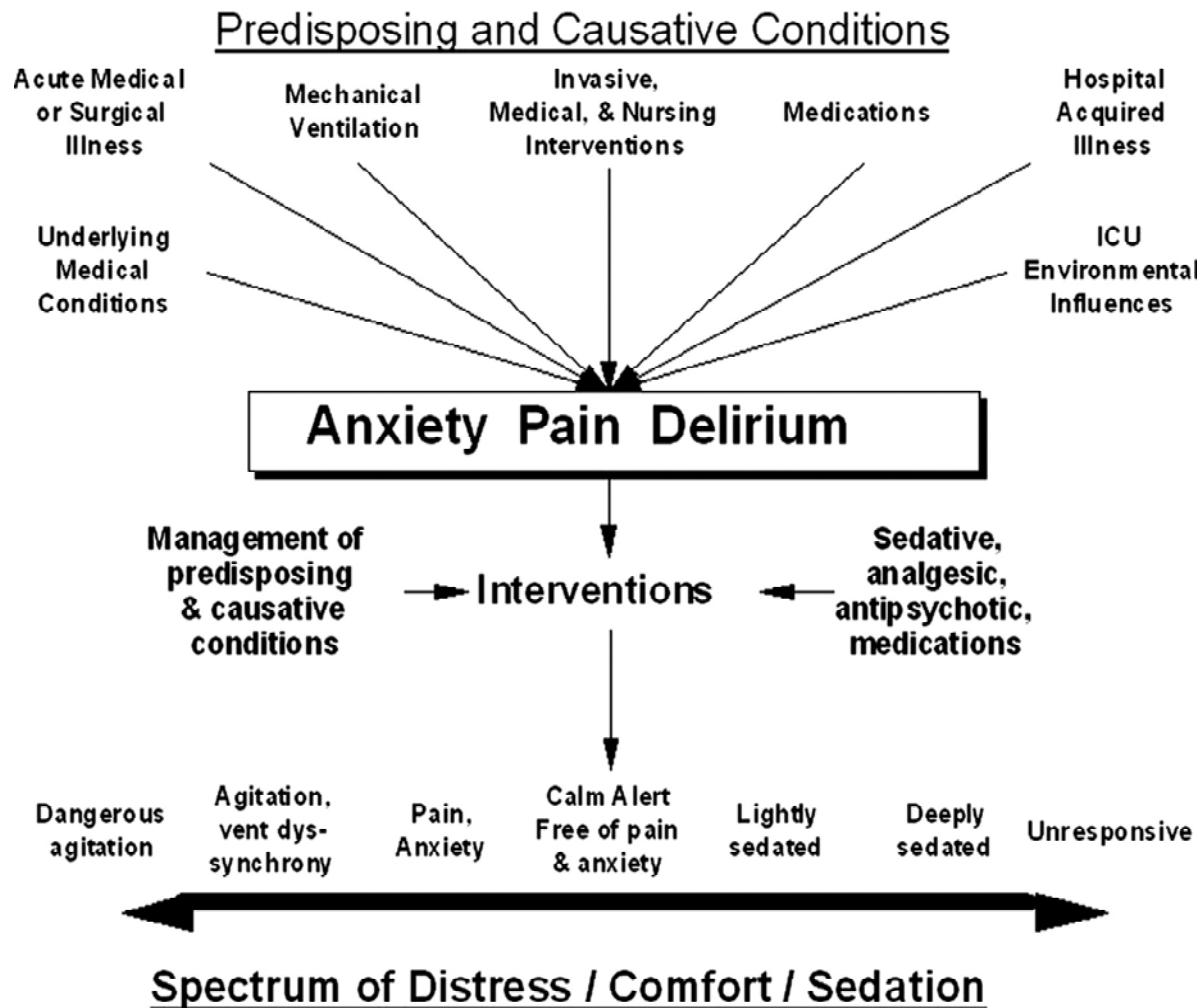
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Het werkt wel maar we doen er
weinig mee.....



Waarom sedatie (en analgesie)?





Sessler, C. N. et al. Chest 2008;133:552-565



factoren

- ▣ Interdisciplinair
- ▣ Initiele overweging en management
- ▣ Evaluatie van pijn, aggitatie, sedatie en delier
- ▣ Medicatie

Hoe geregeld bij jullie?

- ▣ Protocol
- ▣ Protocol + Intensivist
- ▣ P + I + Verpleegkundige
- ▣ P + I + V + Psychiater
- ▣ P + I + V + Ps + Apotheker
- ▣ P + I + V + Ps + A + ?

Bent u tevreden

- ▣ Of kan het misschien beter?



Wat is de beste sedatiemethode?



Patient

- ▣ Voorgeschiedenis
- ▣ Angst
- ▣ Pijn
- ▣ Delier
- ▣ Nierfunctiestoornissen
- ▣ Leverfunctiestoornissen
- ▣ Leeftijd

Protocol

- ▣ Dagelijks onderbreken?
- ▣ Continu infuus vs intermitterend?
- ▣ Sedatie scores: RSS, SAS, MAAS, RASS, ATICE, MSAT
- ▣ Delier score: CAM-ICU, ICDSC
- ▣ Medicatie?

Pijn evaluatie

- ▣ Indien respons mogelijk: VAS score
- ▣ Anders Critical Care Pain Observation Tool

Gelinas C, Fillion L, Puntillo KA, et al. Validation of the critical-care pain observation tool in adult patients. *Am J Crit Care* 2006; 15:420-427

Delier evaluatie

Confusion Assessment Method in the ICU



RASS is above - 4
(-3 through +4)

Proceed to next Step

If RASS is -4 or -5

Stop

Reassess patient at later time

Delirium Assessment (CAM-ICU): 1 AND 2 AND (Either 3 OR 4)

1 Acute Onset or Fluctuating Course

An acute change from mental status baseline?
Or Patient's mental status fluctuating during the past 24hrs

No

Stop
No delirium

Yes

2 Inattention

Please read the following ten letters: **SAVEAHAART**
Scoring: Error: when patient fails to squeeze on the letter "A"
Error: when the patient squeezes on any letter other than "A."

< 3 Errors

Stop
No delirium

≥ 3 Errors

3 Altered Level of Consciousness ("actual" RASS)

If RASS is zero, Proceed to next step

If RASS is other than zero

Stop
Patient is
Delirious

0 RASS

4 Disorganized Thinking

1. Will a stone float on water? (Or: Will a leaf float on water?)
2. Are there fish in the sea? (Or: Are there elephants in the sea?)
3. Does one pound weigh more than two pounds? (Or: Do two pounds weigh more than one?)
4. Can you use a hammer to pound a nail? (Or: Can you use a hammer to cut wood?)
5. Command:

≥ 2 Errors

Patient is Delirious

Say to patient: "Hold up this many fingers" (Examiner holds two fingers in front of patient)
"Now do the same thing with the other hand" (Not repeating the number of fingers).
If patient is unable to move both arms for the second part, ask patient "add one more finger"

< 2 Errors

Stop
No delirium

Ramsay's scale

Level	Characteristics
1	Patient awake, anxious, agitated, or restless
2	Patient awake, cooperative, orientated and tranquil
3	Patient drowsy, with response to commands
4	Patient asleep, brisk response to glabella tap or loud auditory stimulus.
5	Patient asleep, sluggish response to stimulus
6	Patient has no response to firm nail-bed pressure or other noxious stimuli.

*Data from Ramsay MAE, Savage TM, Simpson BRJ, et al: Controlled sedation with alphaxalone/alphadolone. BMJ 2:656, 1974.

Medicatie

“Today we will be mixing. . . the Draught of Peace, a potion to calm anxiety and soothe agitation. Be warned: if you are too heavy-handed with the ingredients you will put the drinker into a heavy and sometimes irreversible sleep, so you will need to pay attention to what you are doing,”



“Today we will be **mixing**. . . the Draught of Peace, a potion to **calm anxiety and soothe agitation**. Be warned: if you are **too heavy-handed** with the **ingredients** you will put the drinker into a **heavy and sometimes irreversible sleep**, so you will need to pay attention to what you are doing,”

Severus Snape, teacher at
Hogwarts School of Witchcraft
and Wizardry



Medicatie

- ▣ Lorazepam
- ▣ Midazolam
- ▣ Propofol
- ▣ Dexmedetomidine
- ▣ Remifentanyl
- ▣ Morfine
- ▣ Fentanyl
- ▣ Sufentanyl
- ▣ Haloperidol



Medicatie vragen

- ▣ Midazolam “stapelt” indien langer dan 48 uur gegeven.
- ▣ Remifentanyl wordt renaal geklaard
- ▣ Dexmedetomidine lijkt op Clonidine
- ▣ Midazolam leidt tot langere IC ligduur
- ▣ Haloperidol kan ritmestoornissen geven
- ▣ Olanzapine is net zo effectief als Haloperidol
- ▣ Haldol leidt tot een lagere mortaliteit



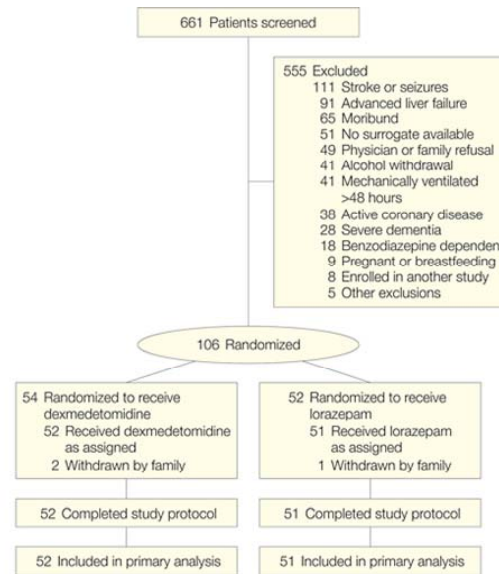
**Effect of Sedation With Dexmedetomidine vs Lorazepam on Acute
Brain Dysfunction in Mechanically Ventilated Patients**

JAMA. 2007;298(22):2644-2653

werking

- ▣ α 2 agonist
- ▣ Sedatie en analgesie

Screening, Enrollment, and Randomization



Pandharipande, P. P. et al. *JAMA* 2007;298:2644-2653.

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JAMA

Efficacy of Sedation With Dexmedetomidine vs Lorazepam^a

Table 3. Efficacy of Sedation With Dexmedetomidine vs Lorazepam^a

Variable	Dexmedetomidine (n = 52)	Lorazepam (n = 51)	P Value
Outcome			
Received study drug, d	5 (2-6)	4 (2-6)	.52
RASS score within 1 point of nurse goal, % (IQR) ^b	80 (58-100)	67 (48-83)	.04
RASS score within 1 point of physician goal, % (IQR) ^b	67 (50-85)	55 (8-67)	.008
Sedated deeper than nurse goal RASS score, % (IQR) ^c	15 (0-33)	33 (11-48)	.01
Oversedated on study drug, d	1 (0-2.2)	2 (1-3.5)	.01
Other drugs received during study			
Median fentanyl, µg/d	575 (140-2206)	150 (0-922)	.006
Any antipsychotics, No. (%)	24 (46)	18 (35)	.26
Any propofol, No. (%)	7 (13)	4 (8)	.36
Received antipsychotics, d	0 (0-5)	0 (0-3)	.32

Abbreviations: IQR, interquartile range; RASS, Richmond Agitation-Sedation Scale.

^aMedian (IQR) unless otherwise noted.

^bThe nurse and physician goal RASS score outcomes indicate the percentage of days while on study drug when patients were either at goal or within 1 RASS point of the stated goal.

^cPercentage of days the RASS scores were 2 or more points deeper than the nurse goal for RASS score.

Pandharipande, P. P. et al. JAMA 2007;298:2644-2653.

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Safety Outcomes With Dexmedetomidine vs Lorazepam

Table 4. Safety Outcomes With Dexmedetomidine vs Lorazepam^a

Safety Variable While Receiving Study Drug	Dexmedetomidine (n = 52)	Lorazepam (n = 51)	P Value
Blood pressure history			
Lowest systolic blood pressure, mm Hg	96 (88-105)	97 (88-102)	.60
Lowest diastolic blood pressure, mm Hg	48 (44-55)	49 (44-54)	.91
Ever systolic blood pressure <80 mm Hg, No. (%)	13 (25)	10 (20)	.51
Hypotensive, d	0 (0-0.2)	0 (0-0)	.51
Vasoactive drug history			
Days received	0 (0-2)	0 (0-3)	.72
Number of vasoactive drugs/d ^b	0 (0-0.6)	0 (0-1)	.55
Ever vasoactive drugs increased, No. (%)	15 (29)	18 (35)	.48
Vasoactive drugs were increased, d	0 (0-1)	0 (0-1)	.73
Heart rate/rhythm, No. (%)			
Ever sinus bradycardia, <60/min	9 (17)	2 (4)	.03
Heart rate <40/min	1 (2)	1 (2)	.99
Ever sinus tachycardia, >100/min	36 (69)	37 (73)	.71
Ever atrial fibrillation	3 (6)	0 (0)	.08
Seizures, No. (%)	2 (4)	1 (2)	.57
Self-extubations, No. (%)	4 (8)	2 (4)	.41

^aMeasured during 120-hour study drug protocol. Median (interquartile range) unless otherwise noted.

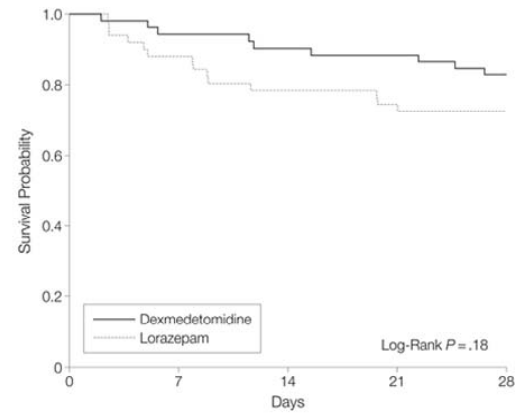
^bReported as the median of the average number of vasoactive drugs that the patients were administered daily in each group.

Pandharipande, P. P. et al. JAMA 2007;298:2644-2653.

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Time to Death Within 28 Days of Enrollment for All Patients



No. at Risk	0	7	14	21	28
Dexmedetomidine	52	51	49	47	43
Lorazepam	51	45	41	38	37

Pandharipande, P. P. et al. JAMA 2007;298:2644-2653.

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Conclusie

“dexmedetomidine was more effective than lorazepam for achieving sustained sedation of mechanically ventilated medical and surgical ICU patients. Dexmedetomidinetreated ICU patients had 4 more days alive and without delirium or coma, significantly higher accuracy at meeting the stated sedation goals, and no added cost of care”

Take home

- ▣ Interdisciplinair protocol met sedatiescore + delierscore en evt wake up: lagere ligduur, lagere mortaliteit.
- ▣ Werk met voorspelbare middelen, orgaanonafhankelijke klaring en korte T1/2
- ▣ Dexmedetomidine: grote trial gestart (midex en prodex), veel belovend maar nog niet geregistreerd voor langdurige sedatie.

Vragen.....

Voor vragen en referenties: bvandermeer@amphia.nl