SEDATION DES ETATS D'AGITATION ET DELIRES EN REANIMATION

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HÔPITAL A. MAMI, ARIANA

INTRODUCTION

- <u>L'agitation et le délirium en réanimation:</u>
  - dysfonctions cérébrales → souffrance cérébrale aiguë
  - fréquents
  - conditionnent le pronostic vital
  - insuffisamment diagnostiqués

DEFINITION

- <u>L'agitation:</u>

  C'est une perturbation psycho-motrice caractérisée par une majoration marquée des activités motrices et psychologiques, souvent accompagnée d'une perte de contrôle de l'action et une désorganisation de la pensée.

- <u>Le délirium:</u>

  C'est un état mental fluctuant, accompagné d'inattention et d'altération de l'état de conscience, survenant dans la majorité des cas chez les malades en USI.

Critical Care 2007, **11**:214 (doi:10.1186/cc5787) *Critical Care* 2006, **10**:223 (doi:10.1186/cc4980)

Clinical Practice Guidelines for the Management of Pain, Agitation, and Delirium in Adult Patients in the Intensive Care Unit

(*Crit Care Med* 2013; 41:263–306)

Delirium is a syndrome characterized by the acute onset of cerebral dysfunction with a change or fluctuation in baseline mental status, inattention, and either disorganized thinking or an altered level of consciousness

A Prospective Study of Agitation in a Medical-Surgical ICU*

Incidence, Risk Factors, and Outcomes

Samir Jaber, MD, PhD; Gérald Chanques, MD; Claire Altairac, PharmD; Mustapha Sebbane, MD; Christine Vergne, MD; Pierre-François Perrigault, MD; and Jean-Jacques Eledjam, MD, PhD

AMERICAN COLLEGE OF CHEST PHYSICIANS®

2005

Variable	Agitation (n=95)	Pas d'agitation (n=87)	*p*
SAPS	40 +/- 16	33 +/- 13	<0,01
Auto-extubation	16,5%	1,7%	0,003
Désinsertion KTC	15,9%	1,2%	0,01
Durée KTC (j)	16,6+/- 17,1	6,1 +/- 5,7	0,0001
Durée Ventilation mécanique ((j)	14,1 +/- 18,7	3,5 +/- 5,2	0,0001
Infections nosocomiales (%) (Pneumonies, infections urinaires, bactériémies)	33,7	6,9	<0,0001
Durée de séjour en réanimation (j)	16 +/- 19	6 +/- 6	0,0001

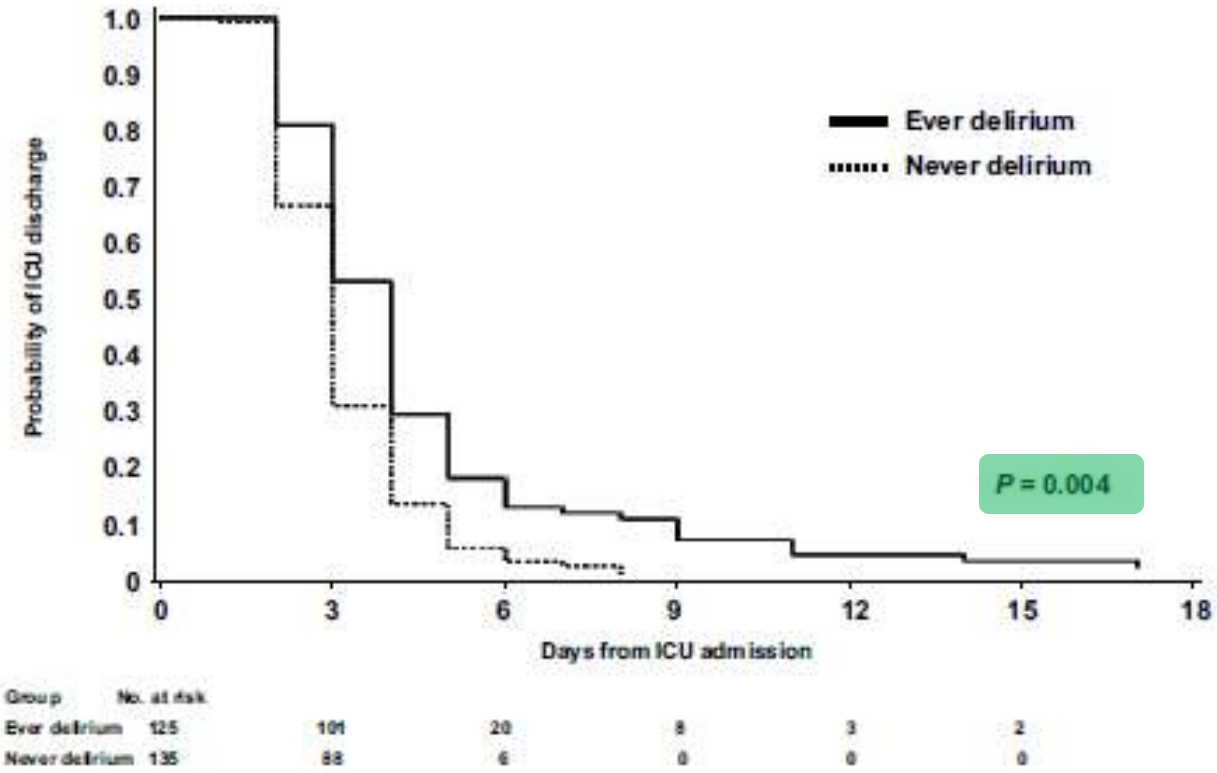
Research

Open Access

Intensive care unit delirium is an independent predictor of longer hospital stay: a prospective analysis of 261 non-ventilated patients

Jason WW Thomason[1], Ayumi Shintani[2], Josh F Peterson[3], Brenda T Pun[4], James C Jackson[5] and E Wesley Ely[6]

Critical Care 2005, **9**:R375-R381



Intensive Care Med (2001) 27: 1892–1900
DOI 10.1007/s00134-001-1132-2

ORIGINAL

E. W. Ely
S. Gautam
R. Margolin
J. Francis
L. May
T. Speroff
B. Truman
R. Dittus
G. R. Bernard
S. K. Inouye

The impact of delirium in the intensive care unit on hospital length of stay

Multiple Linear Regression Model:
Predictors of Lengths of Stay in ICU and Hospital*

Variable	Length of Hospital Stay (days)		
	Beta	95% C.I.	P Value
Intercept	1.82	-	-
Duration of Delirium #	1.18	1.05 -1.32	0.006
APACHE II	1.01	0.98-1.03	0.61
Age	1.00	0.99 – 1.00	0.38
Gender	1.22	0.84 – 1.75	0.30
Drug Days	1.13	1.01 –1.26	0.04

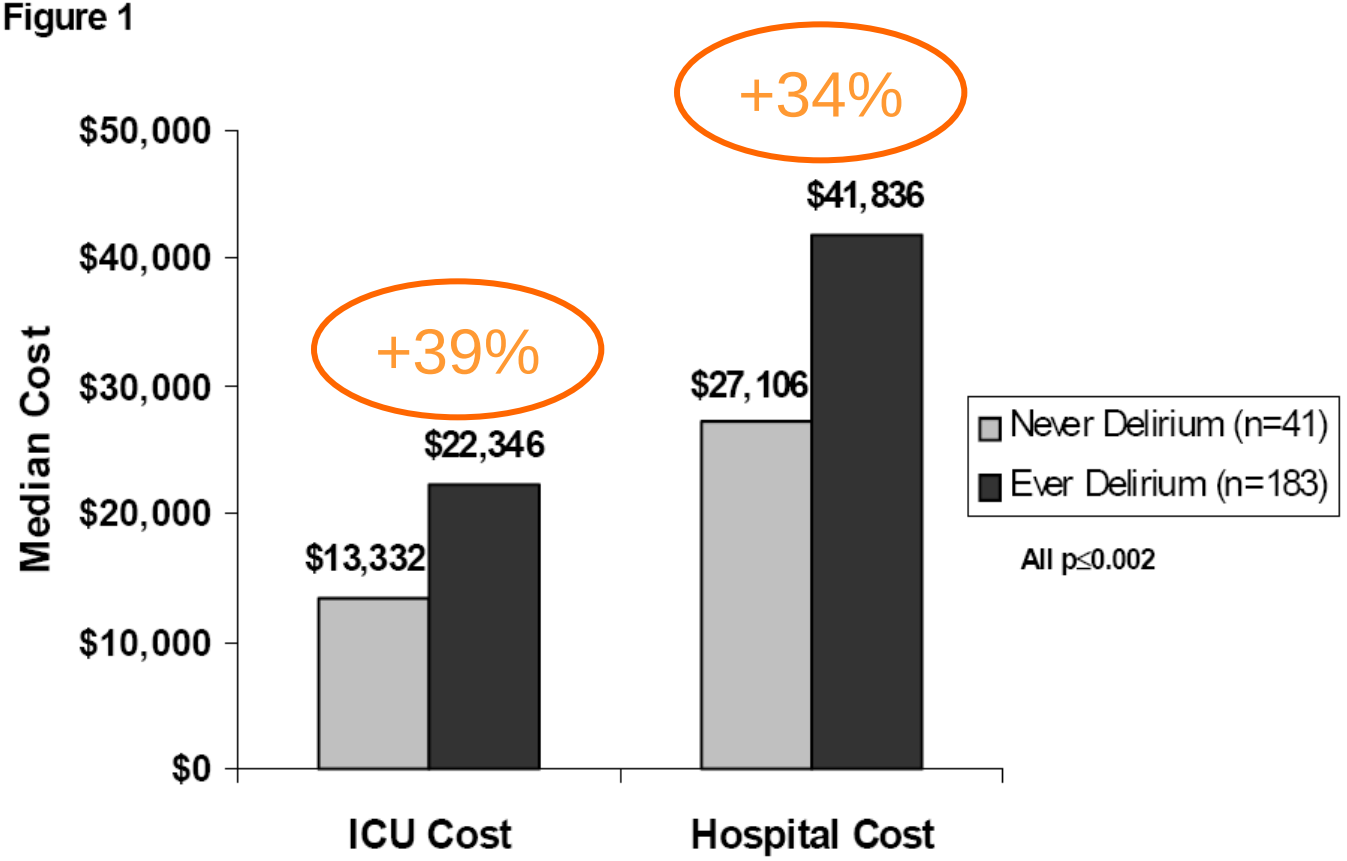
Using multivariate analysis, delirium was the strongest predictor of length of stay in the hospital (P=0.006) even after adjusting for severity of illness, age, gender, race, and days of benzodiazepine and narcotic drug administration.

Costs associated with delirium in mechanically ventilated patients*

Eric B. Milbrandt, MD, MPH; Stephen Deppen, MA, MS; Patricia L. Harrison, MPH;
Ayumi K. Shintani, PhD, MPH; Theodore Speroff, PhD; Renée A. Stiles, PhD; Brenda Truman, RN, MSN;
Gordon R. Bernard, MD; Robert S. Dittus, MD, MPH; E. Wesley Ely, MD, MPH

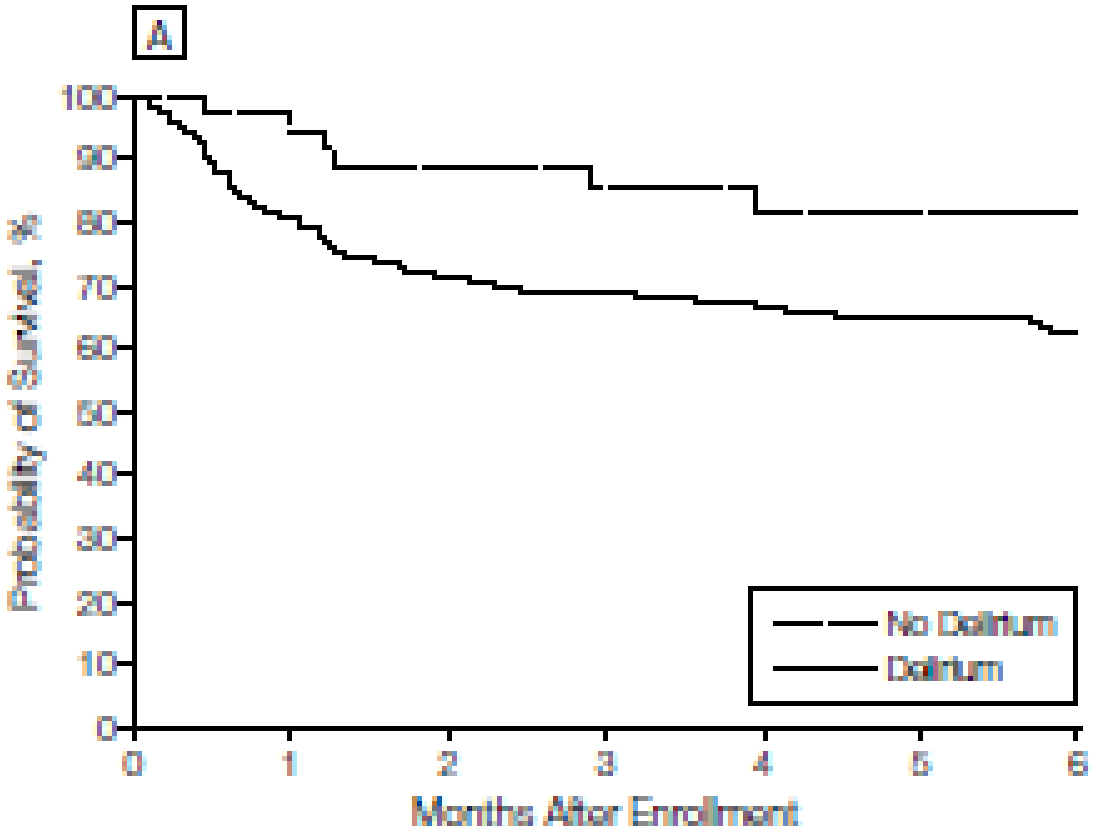
Crit Care Med 2004 Vol. 32, No. 4

Figure 1



Delirium as a Predictor of Mortality in Mechanically Ventilated Patients in the Intensive Care Unit

Ely et al – JAMA - 2004



	No Delirium	Delirium	Adjusted *P* Value
	6-Month Mortality		
No.	41	183	
Rate, No. (%)	6 (15)	63 (34)	
Adjusted HR (95% CI)*	Reference	3.2 (1.4-7.7)	.006

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(*Crit Care Med* 2013; 41:263–306)

Outcomes associated with delirium

i. Delirium is associated with increased mortality in adult ICU patients (A).

ii. Delirium is associated with prolonged ICU and hospital LOS in adult ICU patients (A).

iii. Delirium is associated with the development of post-ICU cognitive impairment in adult ICU patients (B).

EN RESUME

AGITATION

- Incidents
  Auto-extubation
  Arrachement KT
- Infections nosocomiales
- Durée VM
- Durée de séjour

DELIRIUM

- Durée VM
- Durée de séjour
- Coût
- Mortalité

Salluh *et al. Critical Care* 2010, **14**:R210
http://ccforum.com/content/14/6/R210

CRITICAL CARE

RESEARCH Open Access

Delirium epidemiology in critical care (DECCA): an international study

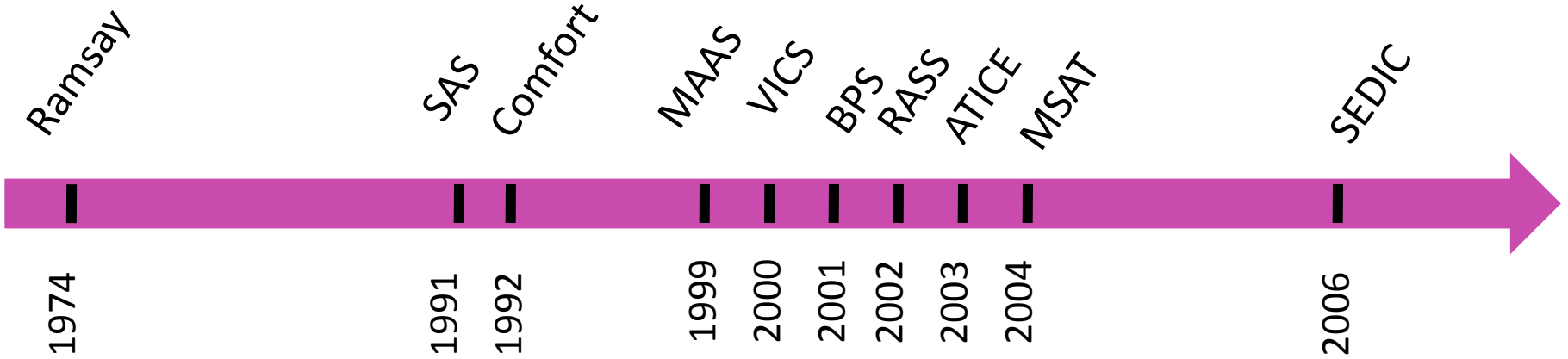
- one day obsevational study
- 104 ICU (south America)
- 232 patients evaluable for delirium with CAM-ICU

After excluding patients deeply sedated and unarousable with RASS deeper than -3, delirium was evaluated with the CAM-ICU in 232 patients (46.7% of the entire eligible patient population). Overall, delirium was diagnosed with the CAM-ICU in 75 (32.2%) of the included arousable patients. Detailed comparisons between patients

INCIDENCE

Auteur, année	Population Réa, n	Critère (échelle)	Fréq.
Dubois, ICM 2001	Med-chir, n=216	Delirium (ICDSC)	19%
Ely, CCM 2001	Med, n=48	Delirium (CAM-ICU)	60%
Ely, Crit care 2003	Med non ventilés, n=261	Delirium (CAM-ICU)	48%
Woods, ICM 2004	Med, n=143	Agitation (MAAS)	16%
Ely, JAMA 2004	Med et USIC, n=224	Delirium (CAM-ICU)	82%
Jaber, Chest 2005	Med-chir, n=211	Agitation (Ramsay)	52%
Ely, ICM 2007	Chir-Trauma, n=100	Delirium (CAM-ICU)	70%
Ely, JAMA 2007	Med-chir, n=106	Delirium (CAM-ICU)	80%
Ouimet, ICM 2007	Med-chir, n=820	Delirium (ICDSC)	32%

ECHELLES DE SÉDATION-ANALGÉSIE



AJCC American Journal of Critical Care

Am J Crit Care 2008;17:555-565

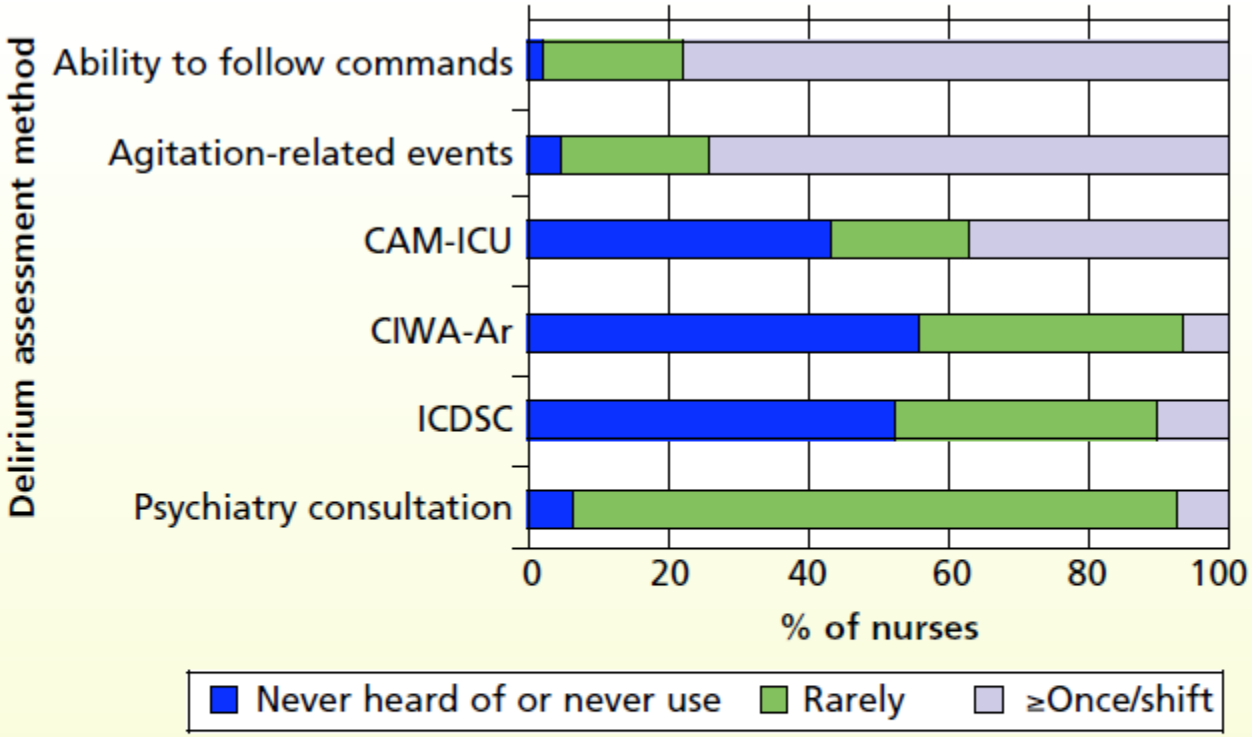


Figure 3 Frequency of use of possible methods of evaluating patients for delirium.

Abbreviations: CAM-ICU, Confusion Assessment Method for the Intensive Care Unit; CIWA-Ar, Clinical Institute Withdrawal of Alcohol Scale, Revised; ICDSC, Intensive Care Delirium Screening Checklist.

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Agitation and Sedation

The Richmond Agitation-Sedation Scale (RASS) and Sedation-Agitation Scale (SAS) are the most valid and reliable sedation assessment tools for measuring quality and depth of sedation in adult ICU patients (B).

Detecting and monitoring delirium

i. We recommend routine monitoring of delirium in adult ICU patients (+1B).
ii. The Confusion Assessment Method for the ICU (CAM-ICU) and the Intensive Care Delirium Screening Checklist (ICDSC) are the most valid and reliable delirium monitoring tools in adult ICU patients (A).
iii. Routine monitoring of delirium in adult ICU patients is feasible in clinical practice (B).

RASS : Richmond Agitation Sedation Scale

Echelle	Définition	Description
+4	Violent	Danger immédiat pour personnel soignant
+3	Très agité	Agressif, arrache cathéters, sondes…
+2	Agité	Lutte contre ventilateur, mouvements fréquents sans but
+1	Sans repos	Anxieux, sans mouvements vifs ou agressifs
0	Calme, éveillé	
-1	Somnolent	Ouvre les yeux à l'appel (contact visuel soutenu, > 10s)
-2	Sédation légère	Réveil bref à l'appel (contact visuel < 10s)
-3	Sédation modérée	Ouvre les yeux ou bouge à l'appel (contact visuel : 0)
-4	Sédation profonde	Pas de réponse à l'appel, réactif aux stim. douloureuses
-5	Non réveillable	Pas de réponse à l'appel ou aux stim. douloureuses

Richmond Agitation-Sedation Scale

Score	Term	Description	
+4	Combative	Overtly combative, violent, immediate danger to staff	
+3	Very agitated	Pulls or removes tube(s) or catheter(s); aggressive	
+2	Agitated	Frequent nonpurposeful movement, fights ventilator	
+1	Restless	Anxious but movements not aggressive or vigorous	
0	Alert and calm		
–1	Drowsy	Not fully alert, but has sustained awakening (eye opening/eye contact) to voice (>10 seconds)	Verbal stimulation
–2	Light sedation	Briefly awakens with eye contact to voice (<10 seconds)	
–3	Moderate sedation	Movement or eye opening to voice (but no eye contact)	
–4	Deep sedation	No response to voice, but movement or eye opening to physical stimulation	Physical stimulation
–5	Unarousable	No response to voice or physical stimulation	

Ely, JAMA 2003

SEDATION AGITATION SCALE

Sedation–Agitation Scale (SAS)		
7	Dangerous agitation	Pulling at ET tube, trying to remove catheters, climbing over bed rail, striking at staff, thrashing side-to-side
6	Very agitated	Does not calm, despite frequent verbal reminding of limits; requires physical restraints, biting ET tube
5	Agitated	Anxious or mildly agitated, attempting to sit up, calms dow to verbal instructions
4	Calm and cooperative	Calm, awakens easily, follows commands
3	Sedated	Difficult to arouse, awakens to verbal stimuli or gentle shaking but drifts off again, follows simple commands
2	Very sedated	Arouses to physical stimuli but does not communicate or follow commands, may move spontaneously
1	Unarousable	Minimal or no response to noxious stimuli, does not communicate or follow commands

Riker, Crit Care Med 1999

Confusion Assessment Method-ICU ou CAM-ICU: 2 étapes

CRITICAL CARE

Critical Care 2008, 12(Suppl 3):S3

1. **Evaluer SÉDATION => ECHELLE RASS**
   - ⇒ **Si le RASS est à -5 ou à -4: l'évaluation du délirium n'est pas possible. À ré-évaluer.**
   - ⇒ **Si le RASS est entre -3 (sédation modérée) et +4 (violent), passer à la 2ème étape.**

2. **Evaluer DELIRIUM => CAM ICU**

CAM-ICU

CHEST
Pun B. T., Ely E. W. Chest 2007;132:624-636

1. Acute onset of mental status changes or a fluctuating course

and

2. Inattention

and

3. Disorganized Thinking

or

4. Altered level of consciousness

= Delirium

Sensibilité 93-100%
Spécificité 89-100%

1. Modification du comportement par rapport à l'état habituel ?
Début brutal ou fluctuations

A. Existe-t-il des signes de changement brutal de l'état mental par rapport à l'état habituel ?

B. Le comportement objectivé par des mesures sur une échelle de sédation (RASS), le score de Glasgow ou un autre test, a t-il fluctué au cours des 24 dernières heures?

2. inattention, distractibilité

A. EDA auditif (lettres)

Instructions : dire au patient « Je vais vous lire une série de 10 lettres. A chaque fois que vous entendrez la lettre 'A' indiquez-le moi en serrant ma main ». Lire les 11 lettres suivantes sur un ton normal (assez fort pour être entendu dans le bruit de l'USI) au rythme d'une lettre par seconde.

ABRACADABRA

Cotation : une erreur est comptée lorsque le patient ne serre pas la main sur une lettre 'A' ou lorsqu'il serre la main sur une autre lettre.

3. Désorganisation de la pensée

Existe-t-il des signes de pensée désorganisée ou incohérente mis en évidence par au moins 3 réponses incorrectes sur 4 et/ou l'incapacité à exécuter les ordres ?

Questions (alterner les jeux de questions A et B) :

Jeu A :
1. Une pierre flotte-t-elle sur l'eau ?
2. Y a-t-il des poissons dans la mer ?
3. Un kilogramme pèse-t-il plus que 2 kilogrammes ?
4. Pouvez-vous utiliser un marteau pour enfoncer un clou ?

Jeu B :
1. Une feuille flotte-t-elle sur l'eau ?
2. Y a-t-il des éléphants dans la mer ?
3. Deux kilogrammes pèsent-t-ils plus qu'un kilogramme ?
4. Pouvez-vous utiliser un marteau pour couper du bois ?

4. Altération du niveau de conscience

Le niveau de conscience du patient est-il différent de « éveillé »
- **Eveillé** = spontanément attentif à son environnement avec des interactions appropriées
- **Hyper vigilant**
- **Obnubilé** =endormi mais facilement réveillé, ignorant certains éléments de son environnement, ou n'interagissant pas spontanément de façon appropriée avec l'examinateur; devenant complètement attentif et approprié avec une stimulation minimale.
- **Stuporeux** =pas complètement attentif malgré une forte stimulation ; peut seulement être réveillé par des stimulations vigoureuses et répétées, et dès qu'elles cessent, le patient tombe de nouveau dans un état stuporeux
- **Comateux** = que l'on peut réveiller ; pas d'interaction spontanée ou conscience de la présence de l'examinateur (meme après stimulation maximale)

ICU Delirium Screening Checklist

Items:

- **Altered level of consciousness (if A or B, do not complete patient evaluation for the period)**

  A: No response, score: none

  B: Response to intense and repeated stimulation (loud voice and pain), score: none

  D: Normal wakefulness, score: 0

  E: Exaggerated response to normal stimulation, score: 1
- **Inattention (score: 0 to 1)**
- **Disorientation (score: 0 to 1)**
- **Hallucination-delusion-psychosis (score: 0 to 1)**
- **Psychomotor agitation or retardation (score: 0 to 1)**
- **Inappropriate speech or mood (score: 0 to 1)**
- **Sleep/wake cycle disturbance (score: 0 to 1)**
- **Symptom fluctuation (score: 0 to 1)**

Total (score: 0 to 8)

DELIRIUM: FORMES CLINIQUES

HYPERACTIVE

Alerte, hypervigilant

Agitation ψ –motrice
Discours incohérent
Agressivité
Insomnie
Hallucinations
Labilité émotionnelle

HYPOACTIVE

Obnubilation, somnolence

Ralentissement ψ-moteur
Calme
Apathie, contact limité

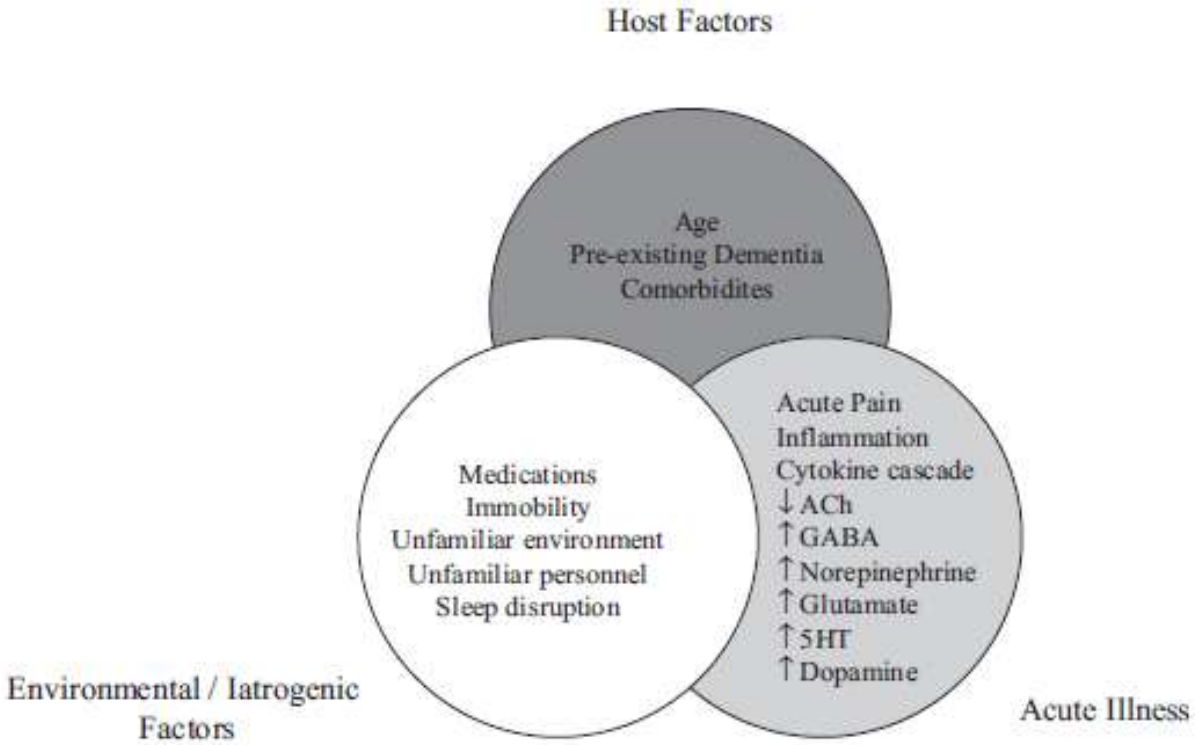
+/- myoclonies, asterixis ….
PAS DE DEFICIT FOCAL
Signes neurovégétatifs : HTA, TC, sueurs ……

ETIOLOGIE
Sevrages (alcool, BZD)
Intoxications méd.

ETIOLOGIE
Sepsis
Troubles métaboliques
Intox BZD

FACTEURS DE RISQUE

Figure 1



Potential mechanisms contributing to intensive care unit-associated delirium [18,49,56]. ACh, acetylcholine; GABA, γ-aminobutyric acid; 5HT, serotonin.

FACTEURS DE RISQUE

Host factors	Factors of critical illness	Iatrogenic factors
Age (older)	Acidosis	Immobilization
Alcoholism	Anemia	Medications (opioids, bzd)
APOE4	Fever/infection/sepsis	Sleep disturbances
Cognitive impairment	Hypotension	Dehydration, dyspnea
Depression	Metabolic disturbances (for example, sodium, calcium, BUN, bilirubin)	
Hypertension	Withdrawal syndrome	
Smoking	Respiratory disease/ congestive heart failure	
Vision/hearing impairment	High severity of illness	

TRAITEMENT DE L'AGITATION

1. Identifier et traiter d'éventuelles causes sous-jacentes de l'agitation:
   - ✓ Douleur +++
   - ✓ Délirium
   - ✓ Hypoxie
   - ✓ Hyponatrémie
   - ✓ Hypoglycémie
   - ✓ Déshydratation
   - ✓ Privation d'alcool ou d'autres drogues
   - ✓ Inconfort: fécalome, globe vésical, veinite…

TRAITEMENT DE L'AGITATION

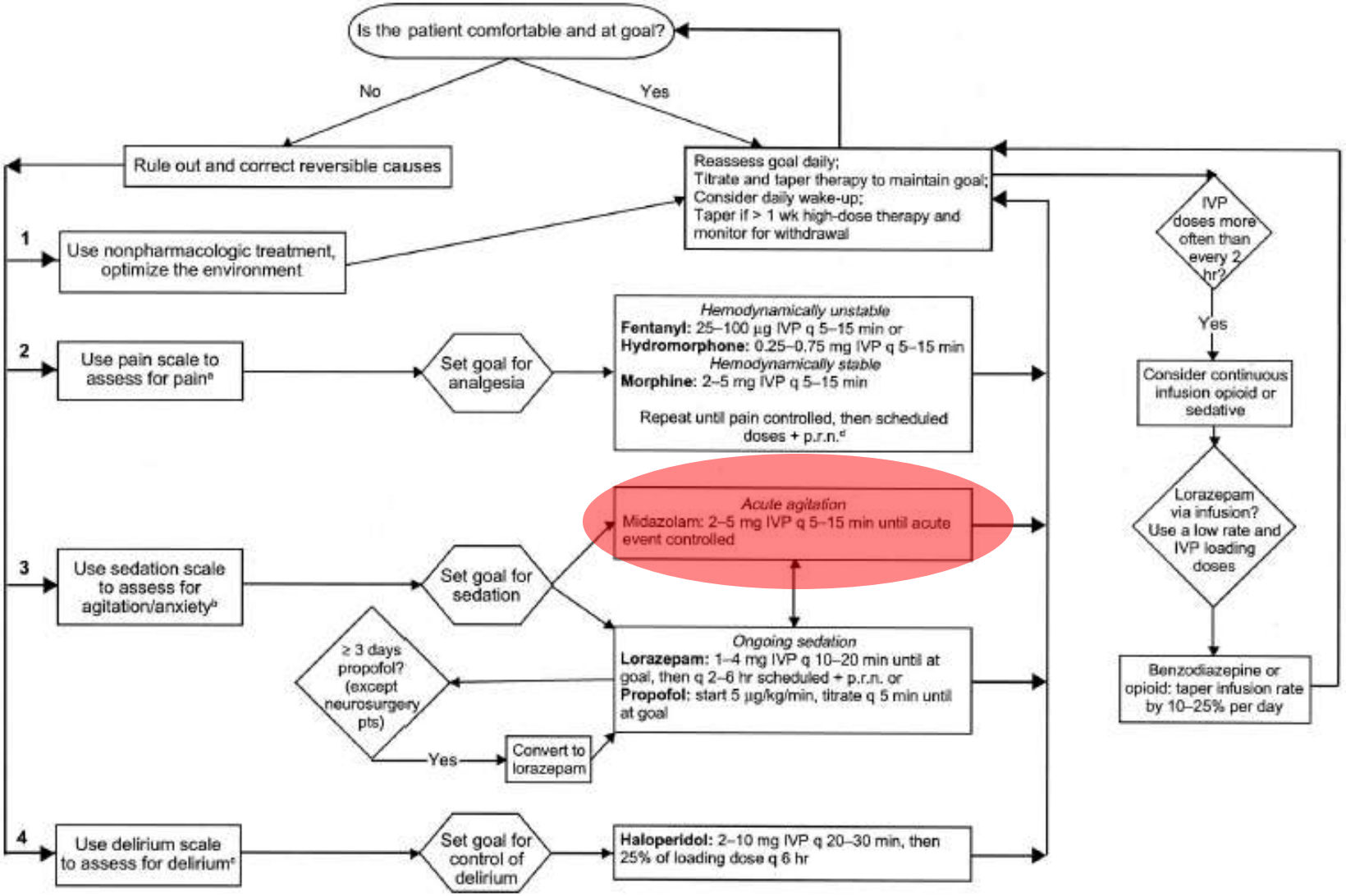
2. Maintenir le confort des patients:
   - ✓ Titrer une analgésie adéquate
   - ✓ Réorientation fréquente
   - ✓ Optimisation de l'environnement pour un cycle veille-sommeil physiologique: gestion des alarmes, du bruit, des lumières, des soins…

TRAITEMENT DE L'AGITATION

3. Traitement pharmacologique:
   - ✓ échelles de sédation (RASS/SAS) +++
   - ✓ IDEAL = sédation légère: patient réveillable, capable d'exécuter les ordres simples, tout en étant adapté au ventilateur.
   - ✓ choix de la molécule:

Clinical practice guidelines for the sustained use of sedatives and analgesics in the critically ill adult

Crit Care Med 2002 Vol. 30, No. 1



Conférence de Consensus commune

2008 **de la Sfar et la SRLF**

Sédation et analgésie en réanimation (nouveau-né exclu)

Question 2 :

Quels sont les moyens thérapeutiques pour la sédation et l'analgésie ?

Moyens non médicamenteux

Il faut promouvoir les moyens non médicamenteux.

L'organisation du service doit prendre en compte l'environnement thermique, lumineux et sonore et le sommeil.

Il faut limiter la douleur induite par les soins.

Il faut probablement utiliser un neuroleptique dans les états confuso-délirants, l'agitation, les orages neurovégétatifs et les syndromes de sevrage.

Les différentes molécules

BENZO

NON BENZO

Agent	Onset After IV Loading Dose	Elimination Half-Life	Active Metabolites	Loading Dose (IV)	Maintenance Dosing (IV)	Adverse Effects
Midazolam	2–5 min	3–11 hr	Yes[a]	0.01–0.05 mg/kg over several minutes	0.02–0.1 mg/kg/hr	Respiratory depression, hypotension
Lorazepam	15–20 min	8–15 hr	None	0.02–0.04 mg/kg (≤ 2 mg)	0.02–0.06 mg/kg q2–6 hr prn or 0.01–0.1 mg/kg/hr (≤10 mg/hr)	Respiratory depression, hypotension; propylene glycol-related acidosis, nephrotoxicity
Diazepam	2–5 min	20–120 hr	Yes[a]	5–10 mg	0.03–0.1 mg/kg q0.5–6 hr prn	Respiratory depression, hypotension, phlebitis[e]
Propofol	1–2 min	Short-term use – 3–12 hr Long-term use – 50 ± 18.6 hr	None	5 µg/kg/min over 5 min[b]	5–50 µg/kg/min	Pain on injection[f], hypotension, respiratory depression, hypertriglyceridemia, pancreatitis, allergic reactions, propofol-related infusion syndrome; deep sedation with propofol is associated with significantly longer emergence times than with light sedation
Dexmedetomidine	5–10 min	1.8–3.1 hr	None	1 µg/kg over 10 min[c]	0.2–0.7 µg/kg/hr[d]	Bradycardia, hypotension; hypertension with loading dose; loss of airway reflexes

(*Crit Care Med* 2013; 41:263–306)

Méta-analyse: 6 études de qualité modérée à haute

Study or Subgroup	Benzodiazepine Mean	SD	Total	non-benzodiazepine Mean	SD	Total	Weight	Mean Difference IV, Random, 95% CI
Hall 2001-72+, M/P, SD	9.14	3.99	10	8.46	4.83	4	1.0%	0.68 [-4.66, 6.02]
Hall 2001-24-72, M/P, SD	6.31	5.94	17	6.59	8.34	21	1.4%	-0.28 [-4.83, 4.27]
Pandharipande 2007, L/D, IQR	9	6.66	51	7.5	10.36	52	2.5%	1.50 [-1.86, 4.86]
Carson 2006, L/P, IQR	10.4	7.47	64	8.3	7.4	68	4.2%	2.10 [-0.44, 4.64]
Hall 2001-24, M/P, SD	2.48	1.99	26	2.95	3.9	21	7.8%	-0.47 [-2.31, 1.37]
Riker 2009, M/D, SD, median	7.6	5.35	122	5.9	5.18	244	17.5%	1.70 [0.55, 2.85]
Searle 1997, M/P, SD	3.9	1.7	20	3.7	1.7	21	20.5%	0.20 [-0.84, 1.24]
Huey-Ling 2008, M/P, SD	3.1	1.12	28	2.8	1.13	32	45.1%	0.30 [-0.27, 0.87]
Total (95% CI)			**338**			**463**	**100.0%**	**0.57 [0.03, 1.10]**

Heterogeneity: $Tau^2 = 0.08$; $Chi^2 = 8.03$, $df = 7$ ($p = 0.33$), $I^2 = 13\%$
Test for overall effect $Z = 2.08$ ($p = 0.04$)

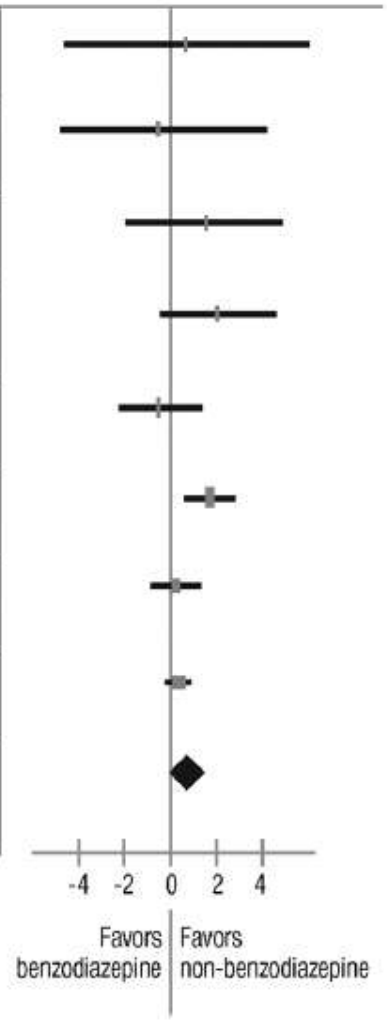


Figure 1. ICU length of stay meta-analysis of high and moderate-quality studies comparing benzodiazepine to nonbenzodiazepine sedation. CI = confidence interval; IQR = interquartile range. L/D = lorazepam vs. dexmedetomidine; L/P = lorazepam vs. propofol; M/P = midazolam vs. propofol; M/D = midazolam vs. dexmedetomidine; SD = standard deviation.

Dexmedetomidine vs Midazolam or Propofol for Sedation During Prolonged Mechanical Ventilation

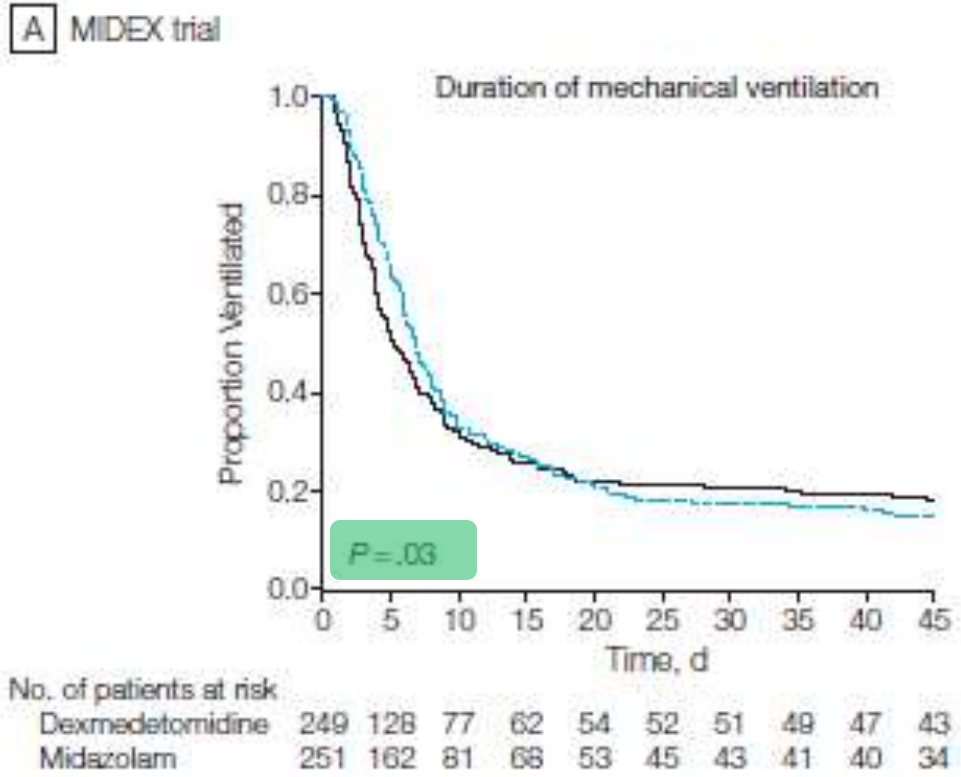
Two Randomized Controlled Trials

Stephan M. Jakob, MD, PhD

Esko Ruokonen, MD, PhD

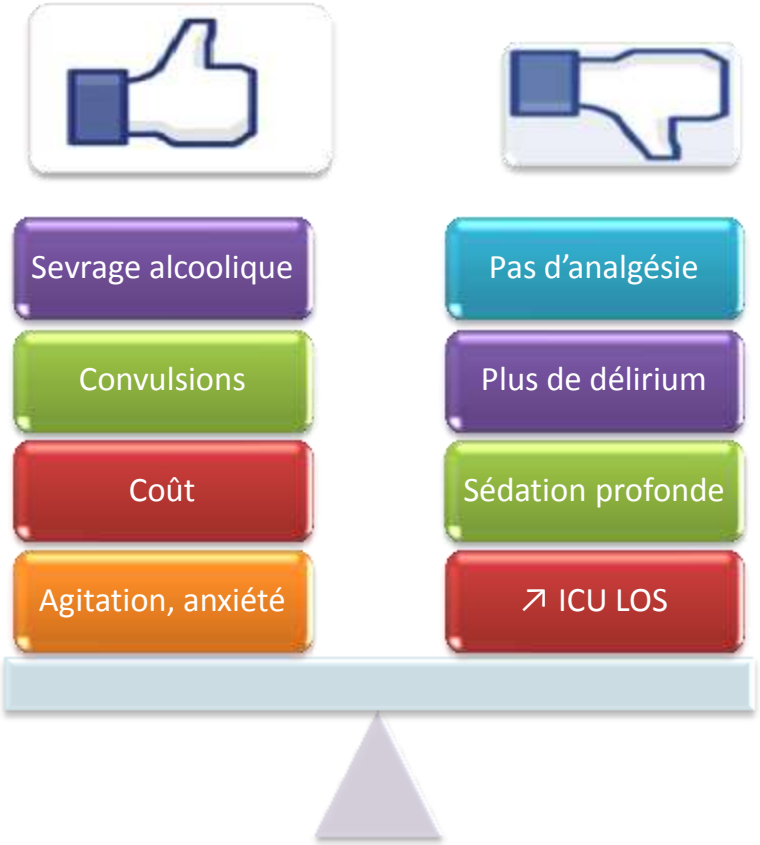
JAMA. 2012;307(11):1151-1160

- 2 ECR: MIDEX et PRODEX
- Non-infériorité
- ↘ durée VM (MIDEX)
- plus d'EI (hypotension, bradycardie)

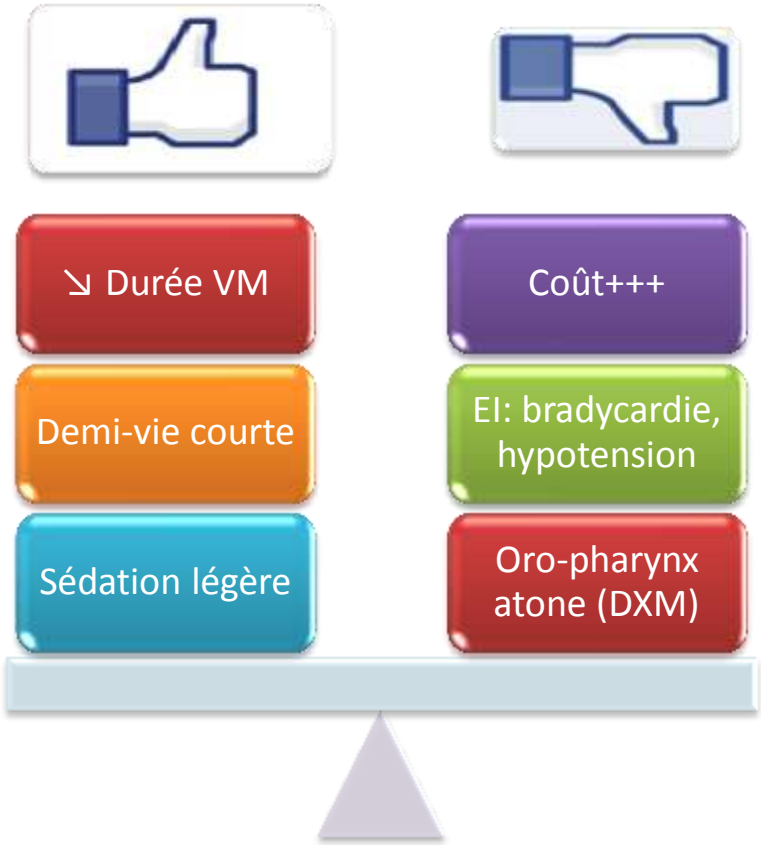


BENZO ou NON-BENZO ???

BENZO



NON-BENZO



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(*Crit Care Med* 2013; 41:263–306)

3. Choice of Sedative

Question: Should nonbenzodiazepine-based sedation, instead of sedation with benzodiazepines, be used in mechanically ventilated adult ICU patients? (actionable)

Answer: We suggest that sedation strategies using nonbenzodiazepine sedatives (either propofol or dexmedetomidine) may be preferred over sedation with benzodiazepines (either midazolam or lorazepam) to improve clinical outcomes in mechanically ventilated adult ICU patients (+2B).

TRAITEMENT DU DELIRIUM

1. Rechercher et traiter une cause organique ++

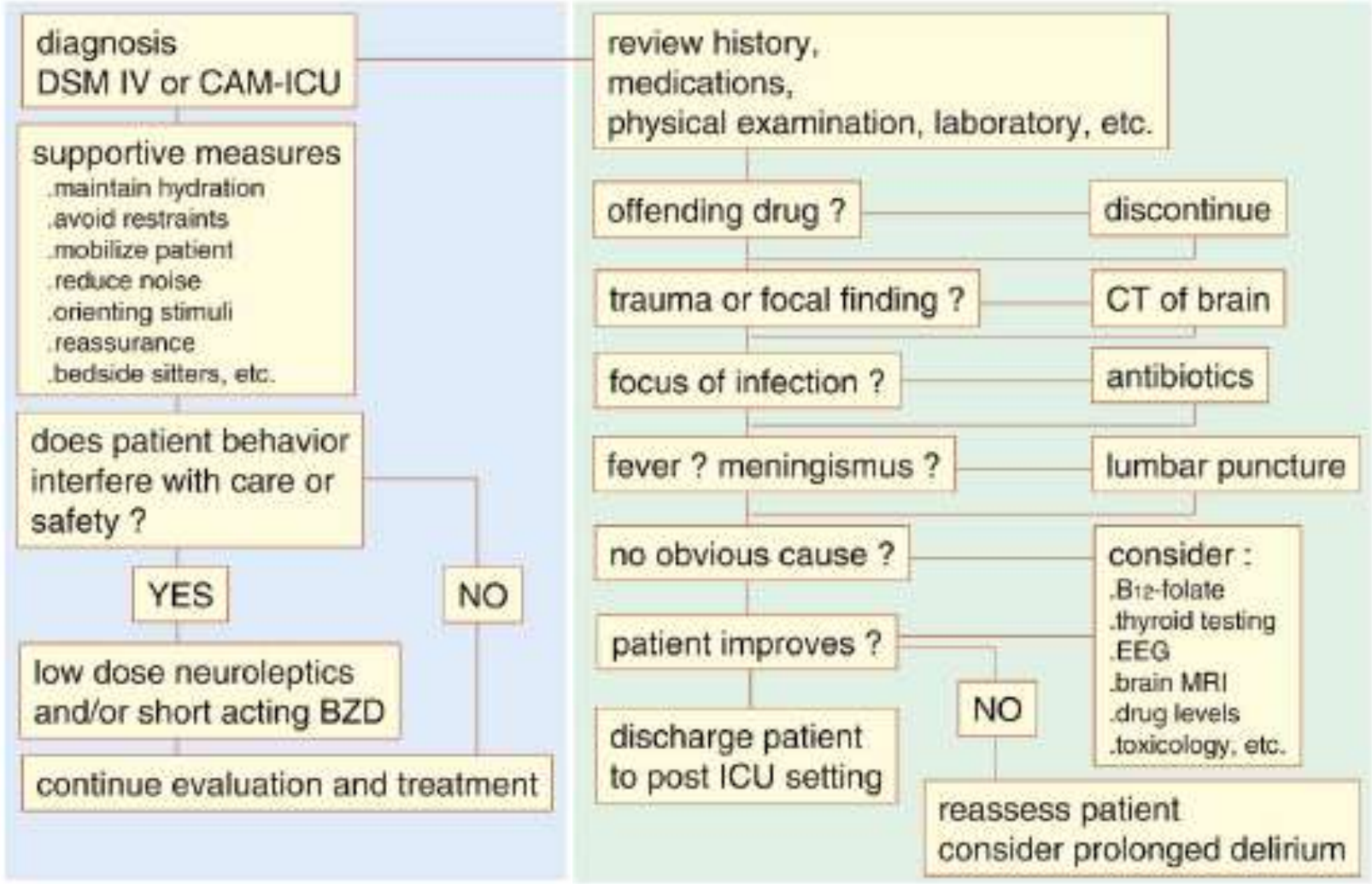
Review

Clinical review: Agitation and delirium in the critically ill – significance and management

Jean-Claude Chevrolet and Philippe Jolliet

CRITICAL CARE

Critical Care 2007, 11:214



TRAITEMENT DU DELIRIUM

2. Amélioration de l'interface de communication avec l'environnement:
   - ✓ facultés sensorielles
   - ✓ implications actives
   - ✓ Mobilisation précoce

Early physical and occupational therapy in mechanically ventilated, critically ill patients: a randomised controlled trial

William D Schweickert, Mark C Pohlman, Anne S Pohlman, Celerina Nigos, Amy J Pawlik, Cheryl L Esbrook, Linda Spears, Megan Miller, Mietka Franczyk, Deanna Deprizio, Gregory A Schmidt, Amy Bowman, Rhonda Barr, Kathryn E McCallister, Jesse B Hall, John P Kress

Lancet 2009; 373: 1874–82

	Intervention (n=49)	Control (n=55)	p value
Return to independent functional status at hospital discharge	29 (59%)	19 (35%)	0·02
ICU delirium (days)	2·0 (0·0–6·0)	4·0 (2·0–7·0)	0·03
Time in ICU with delirium (%)	33% (0–58)	57% (33–69)	0·02
Hospital delirium (days)	2·0 (0·0–6·0)	4·0 (2·0–8·0)	0·02
Hospital days with delirium (%)	28% (26)	41% (27)	0·01
Barthel Index score at hospital discharge	75 (7·5–95)	55 (0–85)	0·05
ICU-acquired paresis at hospital discharge	15 (31%)	27 (49%)	0·09
Ventilator-free days*	23·5 (7·4–25·6)	21·1 (0·0–23·8)	0·05
Duration of mechanical ventilation (days)	3·4 (2·3–7·3)	6·1 (4·0–9·6)	0·02
Duration of mechanical ventilation, survivors (days)	3·7 (2·3–7·7)	5·6 (3·4–8·4)	0·19
Duration of mechanical ventilation, non-survivors (days)	2·5 (2·4–5·5)	9·5 (5·9–14·1)	0·04
Length of stay in ICU (days)	5·9 (4·5–13·2)	7·9 (6·1–12·9)	0·08
Length of stay in hospital (days)	13·5 (8·0–23·1)	12·9 (8·9–19·8)	0·93
Hospital mortality	9 (18%)	14 (25%)	0·53

TRAITEMENT DU DELIRIUM

3. Intervention médicamenteuse minimale, toujours de 2ème intention.

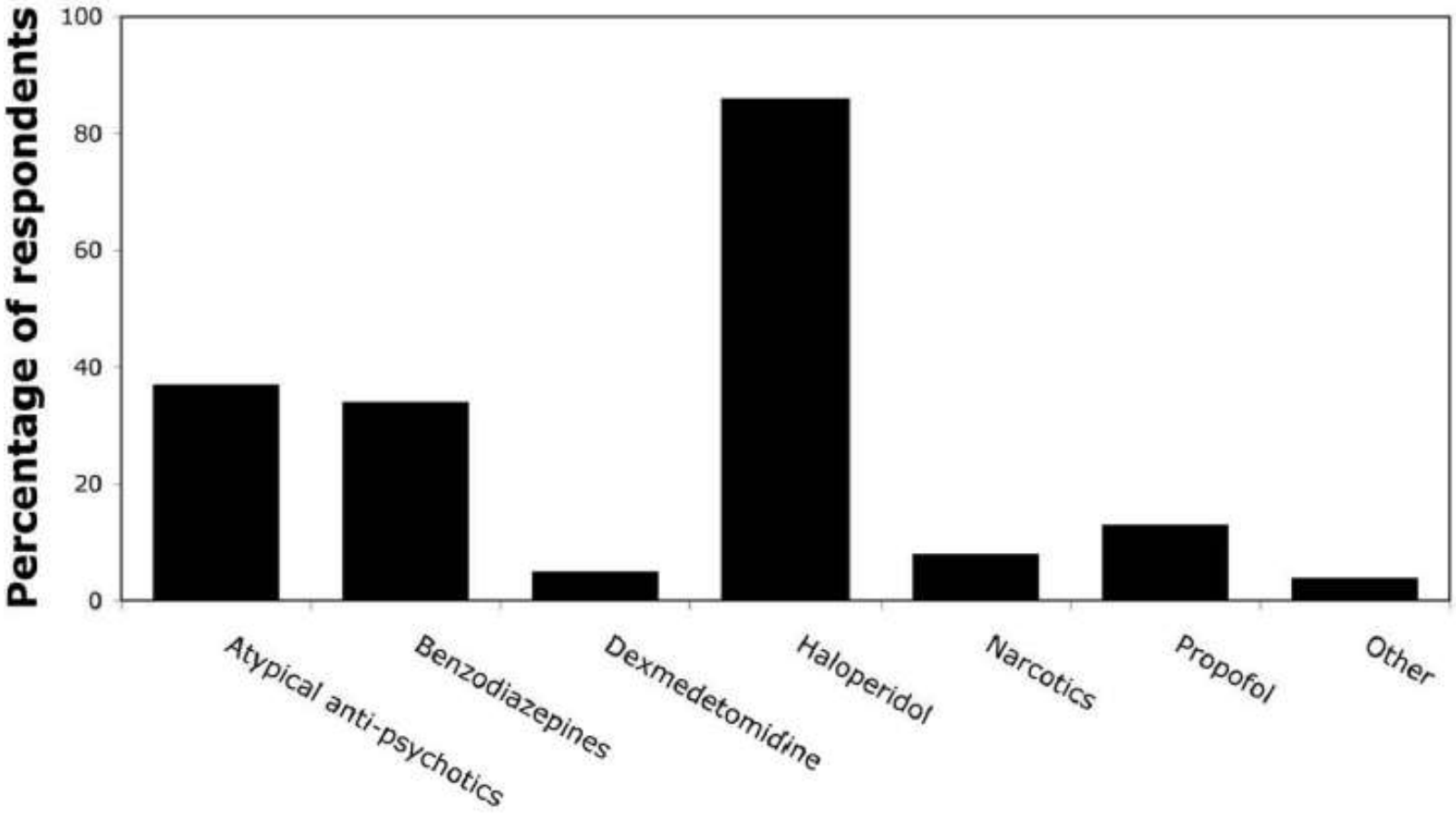
   Formes agitées du délirium ++

   Choix de la molécule :

Delirium and sedation in the intensive care unit: Survey of behaviors and attitudes of 1384 healthcare professionals*

Rina P. Patel, SB; Meredith Gambrell, BA; Theodore Speroff, PhD; Theresa A. Scott, MS;

Crit Care Med 2009 Vol. 37, No. 3

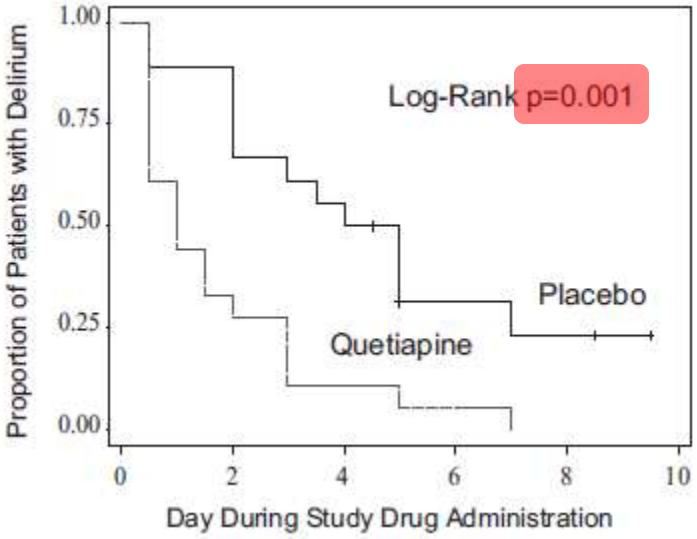


Efficacy and safety of quetiapine in critically ill patients with delirium: A prospective, multicenter, randomized, double-blind, placebo-controlled pilot study*

John W. Devlin, PharmD; Russel J. Roberts, PharmD; Jeffrey J. Fong, PharmD; Yoanna Skrobik, MD;

Crit Care Med 2010 Vol. 38, No. 2

- étude double aveugle
- 2 bras (18 * 2)
- quetiapine vs placebo en plus d'halopéridol à la demande.
- résolution plus rapide du délirium et moins d'agitation



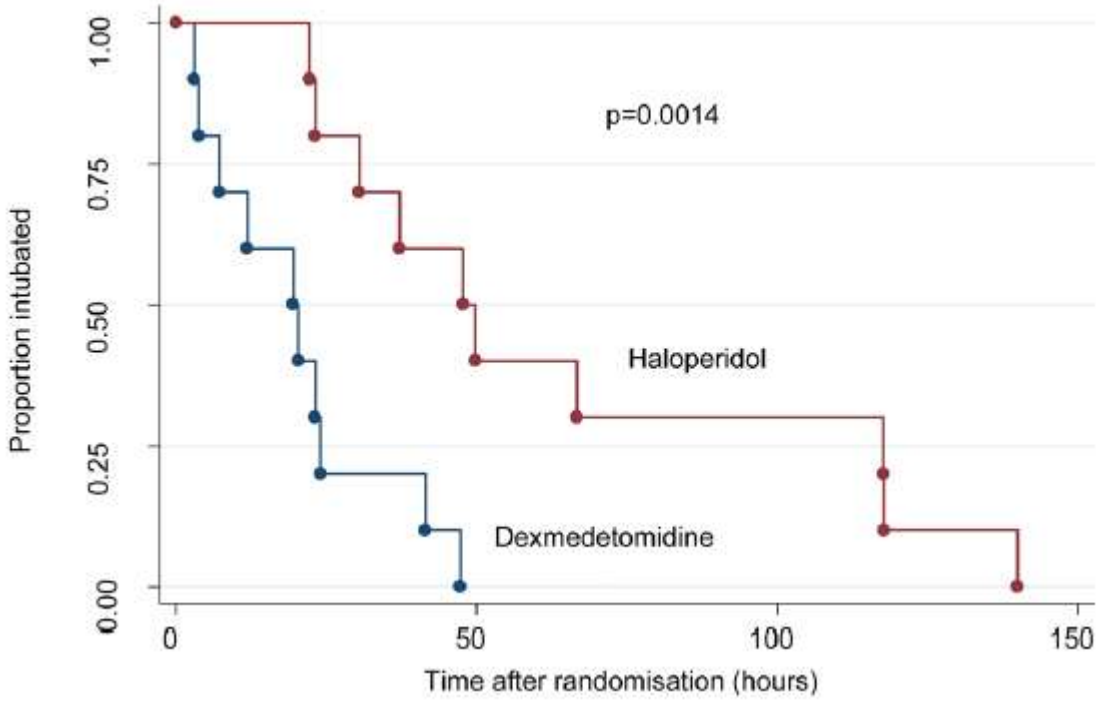
Dexmedetomidine vs. haloperidol in delirious, agitated, intubated patients: a randomised open-label trial

Michael C Reade, Kim O'Sullivan, Samantha Bates, Donna Goldsmith, William RSTJ Ainslie and Rinaldo Bellomo

Critical Care 2009, **13**:R75

Results: efficacy

	Dexmedetomidine	Haloperidol	*P*
Primary			
Time to extubation, hours: median (IQR)	19.9 (7.3 to 24.0)	42.2 (23.2 to 117.8)	0.016



Graph showing time to extubation.

Clinical Practice Guidelines for the Management of Pain, Agitation, and Delirium in Adult Patients in the Intensive Care Unit

(*Crit Care Med* 2013; 41:263–306)

e. Delirium treatment

i. There is no published evidence that treatment with haloperidol reduces the duration of delirium in adult ICU patients (No Evidence).

ii. Atypical antipsychotics may reduce the duration of delirium in adult ICU patients (C).

iii. We do not recommend administering rivastigmine to reduce the duration of delirium in ICU patients (–1B).

iv. We do not suggest using antipsychotics in patients at significant risk for torsades de pointes (i.e., patients with baseline prolongation of QTc interval, patients receiving concomitant medications known to prolong the QTc interval, or patients with a history of this arrhythmia) (–2C).

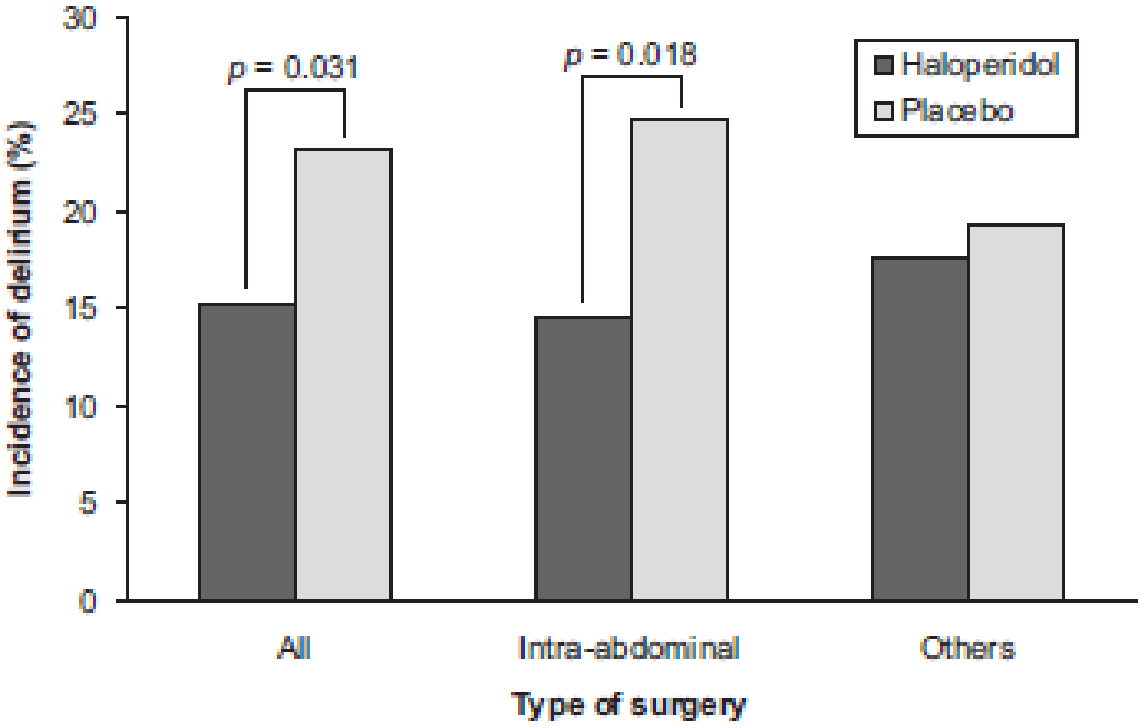
v. We suggest that in adult ICU patients with delirium unrelated to alcohol or benzodiazepine withdrawal, continuous IV infusions of dexmedetomidine rather than benzodiazepine infusions be administered for sedation to reduce the duration of delirium in these patients (+2B).

Haloperidol prophylaxis decreases delirium incidence in elderly patients after noncardiac surgery: A randomized controlled trial*

Wei Wang, MD; Hong-Liang Li, MD; Dong-Xin Wang, MD, PhD; Xi Zhu, MD; Shuang-Ling Li, MD; Gai-Qi Yao, MD; Kai-Sheng Chen, MD; Xiu-E Gu, RN, BSN; Sai-Nan Zhu, MS

Crit Care Med 2012 Vol. 40, No. 3

Étude prospective
Double aveugle
Placebo contrôle
457 malades
2 centres
Perf 12h halopéridol



van den Boogaard *et al. Critical Care* 2013, **17**:R9
http://ccforum.com/content/17/1/R9

CRITICAL CARE

RESEARCH Open Access

Haloperidol prophylaxis in critically ill patients with a high risk for delirium

	Control group (*N* = 299)	Intervention group (*N* = 177)	Differences (*P*-value)
Predicted delirium chance	*73 ± 22*	*75 ± 19*	***0.50***
Observed delirium incidence (n,%)	225 (75%)	115 (65%)	*0.01*

Predicted chance <71%	**Control group (*N* = 110)**	**Intervention group (*N* = 69)**	**Differences (*P*-value)**
Observed delirium incidence	55 (50%)	30 (44%)	*0.27*
Predicted chance 71 to 89%	*(N = 111)*	*(N = 60)*	*Differences*
Observed delirium incidence	94 (85%)	44 (73%)	*0.06*
Predicted chance >89%	*(N = 78)*	*(N = 48)*	*Differences*
Observed delirium incidence	76 (97%)	41 (85%)	*0.06*

Rivastigmine for the prevention of postoperative delirium in elderly patients undergoing elective cardiac surgery—A randomized controlled trial*

Melanie Gamberini, MD; Daniel Bolliger, MD; Giovanna A. Lurati Buse, MD; Christoph S. Burkhart, MD;

Crit Care Med 2009 Vol. 37, No. 5

	Placebo (n = 57)[a]	Rivastigmine (n = 56)[a]	RR (CI)	*p*
Incidence of delirium, n (%)	17 (30)	18 (32)	1.08 (0.62–1.90)	0.8

Clinical Practice Guidelines for the Management of Pain, Agitation, and Delirium in Adult Patients in the Intensive Care Unit

(*Crit Care Med* 2013; 41:263–306)

d. Delirium prevention

i. We recommend performing early mobilization of adult ICU patients whenever feasible to reduce the incidence and duration of delirium (+1B).

ii. We provide no recommendation for using a pharmacologic delirium prevention protocol in adult ICU patients, as no compelling data demonstrate that this reduces the incidence or duration of delirium in these patients (0,C).

iii. We provide no recommendation for using a combined nonpharmacologic and pharmacologic delirium prevention protocol in adult ICU patients, as this has not been shown to reduce the incidence of delirium in these patients (0,C).

iv. We do not suggest that either haloperidol or atypical antipsychotics be administered to prevent delirium in adult ICU patients (–2C).

v. We provide no recommendation for the use of dexmedetomidine to prevent delirium in adult ICU patients, as there is no compelling evidence regarding its effectiveness in these patients (0,C).

We recommend routine monitoring of delirium in adult ICU patients (+1B).

PAD CARE BUNDLE