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Nefarmakologické intervence u deliria v intenzivní péči

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ARK - FNUSA

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Je delirium pro pacienta v IP problém?

- the acute onset of cerebral dysfunction
a change or fluctuation in baseline mental status, inattention, disorganized thinking
- a disturbed level of consciousness (i.e., a reduced clarity of awareness of the environment)
- a reduced ability to focus, sustain, or shift attention
- a change in cognition (i.e., memory deficit, disorientation, language disturbance)
- the development of a perceptual disturbance (i.e., hallucinations, delusions)
- sleep disturbances, abnormal psychomotor activity, and emotional disturbances
(i.e., fear, anxiety, anger, depression, apathy, euphoria)

Patients agitated (hyperactive delirium) x calm or lethargic (hypoactive delirium)

Hyperactive delirium is more often associated with hallucinations and delusions

Hypoactive delirium is more often characterized by confusion and sedation - often misdiagnosed in ICU patients

Delirium in critically ill patients affecting up to 80% of mechanically ventilated adult ICU patients

Increases mortality, morbidity and LOS

Costing \$4 to \$16 billion annually in the United States



Je delirium pro pacienta v IP problém?

Delirium duration and mortality in lightly sedated, mechanically ventilated intensive care patients* Yahya Shehabi, FCICM, EMBA; Richard R. Riker, MD; Paula M. Bokesch, MD; Wayne Wisemandle, MA; Ayumi Shintani, PhD, MPH; E. Wesley Ely, MD, MPH; for the SEDCOM (Safety and Efficacy of Dexmedetomidine Compared With Midazolam) Study Group

The overall prevalence of delirium was 64.4% (228 of 354 patients). The 30-day all-cause mortality of patients without delirium was 11.9% (15 of 126), compared to 30.3% (69 of 228) for those with at least 1 day of delirium. The median time to extubation was 7 days shorter in nondelirious patients. The median ICU length of stay was 12 days shorter in nondelirious patients

Conclusions: In ventilated and lightly sedated intensive care unit patients, the duration of delirium was the strongest independent predictor of death, ventilation time, and intensive care unit stay after adjusting for relevant covariates. (Crit Care Med 2010; 38:2311–2318)

One day of delirium was associated with a **70% higher risk of death**, and each additional day of delirium linked to a 100% increase in the risk of dying or remaining intubated and a 20% greater chance of remaining in the ICU independent of the eight covariates adjusted for in the multivariable analysis

Delirium as a Predictor of Mortality in Mechanically Ventilated Patients in the Intensive Care Unit E. Wesley Ely, MD, MPH Ayumi Shintani, PhD, MPH Brenda Truman, RN, MSN Theodore Speroff, PhD Sharon M. Gordon, PsyD Frank E. Harrell, Jr, PhD Sharon K. Inouye, MD, MPH Gordon R. Bernard, MD Robert S. Dittus, MD, MPH. JAMA. 2004;291:1753-1762

Delirium was an independent predictor of higher 6-month mortality and longer hospital stay even after adjusting for relevant covariates including coma, sedatives, and analgesics in patients receiving mechanical ventilation.

The development of delirium in mechanically ventilated patients was associated with a 3-fold increase in risk of death after controlling for preexisting comorbidities, severity of illness, coma, and the use of sedative and analgesic medication

Older Adults Discharged from the Hospital with Delirium: 1-Year Outcomes Gail J. McAvay, PhD, MS, Peter H. Van Ness, PhD, MPH, w Sidney T. Bogardus, Jr, MD, Ying Zhang, MD, MPH, Douglas L. Leslie, PhD, w Linda S. Leo-Summers, MPH, and Sharon K. Inouye, MD, MPH. J Am Geriatr Soc 54:1245– 1250, 2006

Delirium at discharge is associated with a high rate of nursing home placement and mortality over a 1- year follow-up period.



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A MULTICOMPONENT INTERVENTION TO PREVENT DELIRIUM IN HOSPITALIZED OLDER PATIENTS

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LINDA LEO-SUMMERS, M.P.H., DENISE ACAMPORA, M.P.H., THEODORE R. HOLFORD, PH.D., AND LEO M. COONEY, JR., M.D.

ABSTRACT

Background Since in hospitalized older patients delirium is associated with poor outcomes, we evaluated the effectiveness of a multicomponent strategy for the prevention of delirium.

Methods We studied 852 patients 70 years of age or older who had been admitted to the general-medicine service at a teaching hospital. Patients from one intervention unit and two usual-care units were enrolled by means of a prospective matching strategy. The intervention consisted of standardized protocols for the management of six risk factors for delirium: cognitive impairment, sleep deprivation, immobility, visual impairment, hearing impairment, and dehydration. Delirium, the primary outcome, was assessed daily until discharge.

Results Delirium developed in 9.9 percent of the intervention group, as compared with 15.0 percent of the usual-care group (matched odds ratio, 0.60; 95 percent confidence interval, 0.39 to 0.92). The total number of days with delirium (105 vs. 161, $P=0.02$) and the total number of episodes (62 vs. 90, $P=0.03$) were significantly lower in the intervention group. However, the severity of delirium and recurrence rates were not significantly different. The overall rate of adherence to the intervention was 87 percent, and the total number of targeted risk factors per patient was significantly reduced. Intervention was associated with significant improvement in the degree of cognitive impairment among patients with cognitive impairment at admission and with a significant reduction in the rate of use of sleep medications among all patients. Among the other risk factors, there were trends toward improvement in immobility, visual impairment, and hearing impairment.

Conclusions The risk-factor intervention strategy that we studied resulted in significant reductions in the number and duration of episodes of delirium in hospitalized older patients. The intervention had no significant effect on the severity of delirium or on recurrence rates; this finding suggests that primary prevention of delirium is probably the most effective treatment strategy. (N Engl J Med 1999;340:669-76.)

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DELIRIUM, also known as acute confusional state, is a common, serious, and potentially preventable source of morbidity and mortality among hospitalized older patients.^{1,3} Delirium has particular importance because patients over 65 years of age account for more than 48 percent of all days of hospital care.⁴ Each year, delirium complicates hospital stays for more than 2.3 million older people, involves more than 17.5 million inpatient days, and accounts for more than \$4 billion (in 1994 dollars) of Medicare expenditures.⁵ Substantial additional costs accrue after discharge from the hospital, because of the increased need for institutionalization, rehabilitation, and home care.^{6,7} Moreover, the incidence of delirium will probably increase with the aging of the population.⁸

Previous interventional studies of delirium have focused on four types of intervention: general geriatric approaches,^{9,14} nursing care,¹⁵⁻¹⁹ family interventions,²⁰ and anesthesia.^{21,23} Although in most of the studies there were trends toward a reduction in delirium in the intervention group, in most cases the reduction was not statistically significant. Many studies had methodologic limitations, such as small samples, use of nontargeted interventions, and use of relatively insensitive outcome measures (e.g., screening mental-status tests or confusion checklists). Finally, most previous studies focused on the treatment of delirium rather than on primary prevention, which was the goal of the present study.

Rarely is delirium caused by a single factor; rather, it is a multifactorial syndrome, resulting from the interaction of vulnerability on the part of the patient

From the Departments of Internal Medicine (S.K.I., S.T.B., D.A., L.M.C.) and Epidemiology and Public Health (P.A.C., L.L.-S., T.R.H.), Yale University School of Medicine, New Haven, Conn. Address reprint requests to Dr. Inouie at the Yale University School of Medicine, 20 York St., Tompkins 15, New Haven, CT 06504.

some evidence of moderate quality supporting the efficacy of multicomponent non-pharmacological interventions **to prevent delirium** in older patients acutely admitted to a surgical or a medical ward (patient at intermediate/high-risk of developing delirium)

conflicting/negative evidence concerning the utility of multicomponent non-pharmacological interventions **to treat** delirium



Diagnose delirium

Comparison of the confusion assessment method for the intensive care unit (CAM-ICU) with the Intensive Care Delirium Screening Checklist (ICDSC) for delirium in critical care patients gives high agreement rate(s)

Konstanze Plaschke Rebecca von Haken Mirijam Scholz Ria Engelhardt Angelika Brobeil Eike Martin Markus A. Weigand Intensive Care Med (2008) 34:431–436 DOI 10.1007/s00134-007-0920-8

Different assessment tools for intensive care unit delirium:

Which score to use?* Alawi Luetz, MD; Anja Heymann, MD; Finn M. Radtke, MD; Chokri Chenitir, MD; Ulrike Neuhaus, RN; Irit Nachtigall, MD; Vera von Dossow, MD; Susanne Marz, MD; Verena Eggers, MD; Andreas Heinz, MD; Klaus D. Wernecke, PhD; Claudia D. Spies, MD

Conclusion: The CAM-ICU showed the best validity of the evaluated scales to identify delirium in ICU patients. The NuDESC might be an alternative tool for detection of ICU delirium. The DDS should not be used as a screening tool. (Crit Care Med 2010; 38:409–418)

1. znak: Rychlý nástup, nebo kolísavý průběh Pozitivní, pokud je odpověď „ano“ na 1A nebo 1B. 1A: Je pacient/ka v jiném než základním stavu vědomí? nebo 1B: Došlo během posledních 24 hodin ke kolísání stavu vědomí, projevujícím se kolísáním stupně sedace (např. hodnot RASS, GCC) nebo výsledku předchozího hodnocení deliria?	Ne ⇒	Delirium Negativní
Ano ↓		
2. znak: Porucha pozornosti Pozitivní, pokud je skóre 2A nebo 2B menší než 8. Jako první provedeme test s písmeny – 2A. Pokud je pacient/ka schopen/a podstoupit test a výsledek je jasný, přejdeme na 3.znak. Pokud pacient/ka není schopen/a podstoupit test, nebo výsledek není jasný, provedeme test s obrázky – 2B. Pokud provedete oba testy, použijte ke zhodnocení 2. znaku výsledek testu s obrázky – 2B. 2A: Písmena: zapiš počet bodů (nebo „NT“ pokud netestováno). Návod: Řekněte pacientovi/pacientce: „Budu vám říkat po sobě písmena. Kdykoli uslyšíte písmeno „A“, stiskněte mi ruku.“ Čtete následujících 10 písmen normálním tónem, rychlostí zhruba 1/s. S A V E A H A A R T Hodnocení: Za každé zmačknutí ruky na písmeno „A“ a nezmáčknutí na ostatní písmena přičteme jeden bod Skóre: _____ 2B: Obrázky: zapiš počet bodů (nebo „NT“ pokud netestováno). Návod k testu je přiložen k obrázkům. Skóre: _____ Skóre 0-7 (více než 2 chyby) ↓	Skóre 8-10 (0-2 chyby) ⇒	Delirium Negativní
3.znak: Porucha vigitily Pozitivní, pokud je <u>aktuální</u> RASS skóre jiné než „0“.	RASS jiný než 0 ⇒	Delirium Pozitivní
RASS = 0 ↓		
4. znak: Porucha myšlení pozitivní, pokud je součet bodů z testů 4A a 4B menší než 4 4.A: Otázky ano/ne (Použijte buď skupinu otázek A nebo B, pokud je to nutné, střídavě v následujících dnech): otázky A 1. Plave kámen na vodě? 2. Jsou v moři ryby? 3. Váží 1kg víc než 2kg? 4. Lze kládívem zatlouct hřebík? Skóre: _____ (1 bod za každou správnou odpověď) otázky B 1. Plave list na vodě ? 2. Žijí v moři sloni? 3. Váží 2kg víc než 1kg? 4. Lze kládívem sekát dřevo? Skóre: _____ (1 bod, pokud pacient úspěšně dokončil celý pokyn) 4.B: Pokyn Řekněte pacientovi: „Zvedněte tolik prstů“ (Zkoušející drží dva prsty před pacientem) „Teď udělejte to samé s druhou rukou“ (Bez opakování počtu prstů) Pokud pacient nemůže hýbat oběma rukama, v druhé části testu požádejte pacienta „Teď zvedněte o jeden prst více“. Skóre: _____ (1 bod, pokud pacient úspěšně dokončil celý pokyn)	Skóre 0-3 (>1 chyba) ⇒	Delirium Pozitivní
Skóre: _____ (1 bod za každou správnou odpověď)		
4.B: Pokyn Řekněte pacientovi: „Zvedněte tolik prstů“ (Zkoušející drží dva prsty před pacientem) „Teď udělejte to samé s druhou rukou“ (Bez opakování počtu prstů) Pokud pacient nemůže hýbat oběma rukama, v druhé části testu požádejte pacienta „Teď zvedněte o jeden prst více“. Skóre: _____ (1 bod, pokud pacient úspěšně dokončil celý pokyn)		
Pozitivní CAM-ICU : pozitivní znak 1. a zároveň 2., a buďto 3., nebo 4.		



Risk factors

Numerous risk factors:

- preexisting cognitive impairment
- advanced age
- use of psychoactive drugs
- mechanical ventilation
- untreated pain
- a variety of medical conditions (heart failure, abnormal BP, anemia, sepsis, O₂, Glu, Eltr..)
- constipation
- poor nutrition
- prolonged immobilization
- sleep deprivation
- sensory deprivation
- drug interactions



Targeting risk factors

TABLE 1. RISK FACTORS FOR DELIRIUM AND INTERVENTION PROTOCOLS.

TARGETED RISK FACTOR AND ELIGIBLE PATIENTS	STANDARDIZED INTERVENTION PROTOCOLS	TARGETED OUTCOME FOR REASSESSMENT
<p>Cognitive impairment* All patients, protocol once daily; patients with base-line MMSE score of <20 or orientation score of <8, protocol three times daily</p>	<p><u>Orientation protocol</u>: board with names of care-team members and day's schedule; communication to reorient to surroundings <u>Therapeutic-activities protocol</u>: cognitively stimulating activities three times daily (e.g., discussion of current events, structured reminiscence, or word games) <u>Nonpharmacologic sleep protocol</u>: at bedtime, warm drink (milk or herbal tea), relaxation tapes or music, and back massage <u>Sleep-enhancement protocol</u>: unit-wide noise-reduction strategies (e.g., silent pill crushers, vibrating beepers, and quiet hallways) and schedule adjustments to allow sleep (e.g., rescheduling of medications and procedures) <u>Early-mobilization protocol</u>: ambulation or active range-of-motion exercises three times daily; minimal use of immobilizing equipment (e.g., bladder catheters or physical restraints)</p>	<p>Change in orientation score</p> <p>Change in rate of use of sedative drug for sleep†</p> <p>Change in Activities of Daily Living score</p>
<p>Sleep deprivation All patients; need for protocol assessed once daily</p>		
<p>Immobility All patients; ambulation whenever possible, and range-of-motion exercises when patients chronically non-ambulatory, bed or wheelchair bound, immobilized (e.g., because of an extremity fracture or deep venous thrombosis), or when prescribed bed rest</p>		
<p>Visual impairment Patients with <20/70 visual acuity on binocular near-vision testing</p>	<p><u>Vision protocol</u>: visual aids (e.g., glasses or magnifying lenses) and adaptive equipment (e.g., large illuminated telephone key-pads, large-print books, and fluorescent tape on call bell), with daily reinforcement of their use <u>Hearing protocol</u>: portable amplifying devices, earwax disimpaction, and special communication techniques, with daily reinforcement of these adaptations <u>Dehydration protocol</u>: early recognition of dehydration and volume repletion (i.e., encouragement of oral intake of fluids)</p>	<p>Early correction of vision, ≤48 hr after admission</p> <p>Change in Whisper Test score</p> <p>Change in ratio of blood urea nitrogen to creatinine</p>
<p>Hearing impairment Patients hearing ≤6 of 12 whispers on Whisper Test</p>		
<p>Dehydration Patients with ratio of blood urea nitrogen to creatinine ≥18, screened for protocol by geriatric nurse-specialist</p>		

*The orientation score consisted of results on the first 10 items on the Mini-Mental State Examination (MMSE).

†Sedative drugs included standard hypnotic agents, benzodiazepines, and antihistamines, used as needed for sleep.



Non-pharmac worth it?

Table 1. Characteristics of Included Systematic Reviews/Meta-analyses.

Systematic review	Aim	Search strategy date	Population	Intervention	Outcomes	Primary studies on non-pharmacological intervention included/total studies included in the review	Reviews also interested in pharmacologic intervention
Alway 2013 [51]	To summarize the evidence of earplugs and eye masks.	Unclear	Critically ill adults	Earplugs and eye masks	Sleep and delirium outcomes	2/7	No
Bitsch 2004 [47]	To summarize the pathogenesis of postoperative delirium and to identify strategies for prevention and management.	March 2003	Patients with hip fracture	Educational staff, multicomponent intervention, multidisciplinary team	Delirium prevention and treatment	2/12	Yes
Carr 2013 [52]	To describe the usage, training, clinical and cost effectiveness of sitters in delirium	October 2011	Heterogeneous population including patients at risk of delirium	Use of sitter	Unclear	4/37	No
Clegg 2014 [53]	To assess the effectiveness of interventions for preventing delirium	April 2013	People (aged 65 + years) in permanent long-term care residence	Multi- or single-component interventions	Delirium prevention	2/2	Yes
Cole 1996 [6]	To determine the effectiveness of interventions to prevent delirium.	May 1995	Hospitalized patients	Educational staff, multicomponent intervention, Multidisciplinary team	Delirium prevention	2/10	Yes
Cole 1998 [29]	To gather evidence about treatment prevention and outcome of delirium.	March 1998	Not specified (any)	Educational staff, multicomponent intervention, Multidisciplinary team	Delirium prevention and treatment	2/15	Yes
Cole 1999 [28]	To review evidence related to the effectiveness of systematic	March 1998	Any	Educational staff, multicomponent intervention, multidisciplinary team	Delirium prevention and treatment	2/17	No

Table 1. (Continued)

Systematic review	Aim	Search strategy date	Population	Intervention	Outcomes	Primary studies on non-pharmacological intervention included/total studies included in the review	Reviews also interested in pharmacological intervention
Fox 2012 [7]	To compare the effectiveness of acute geriatric unit care in the acute phase of illness or injury	Unclear (2012?)	Acutely ill or injured adults	Multicomponent intervention	Falls, pressure ulcers, delirium, functional decline, hospital stay, discharge destination, mortality, costs, hospital readmissions	2/19	No
Gonzales 2003 [54]	To assess prevalence, etiology, prognostic factors, diagnosis and management of delirium	Unclear	Any	Multicomponent intervention	Delirium treatment and prevention	1/unclear	Yes
Greer 2011 [9]	To assess prevalence, diagnosis and treatment of delirium	November 2010	Adult inpatients	Educational staff, multicomponent intervention, Multidisciplinary team	Delirium incidence.	11/40	Yes
Grigoryan 2014 [55]	To determine if ortho-geriatric collaboration models improve outcomes	July 2012	Patients with hip fracture	Ortho-geriatric consultation,	In-hospital mortality, length of stay, long-term mortality	2/18	No
Hempenius 2011 [30]	To assess the efficacy of interventions to prevent delirium and to explore which factors increase the effectiveness of these interventions	July 2009	Patients at risk of delirium	Educational staff, multicomponent intervention, Multidisciplinary team	Delirium incidence	4/16	Yes
Holroyd-Leduc 2010 [38]	To assess the effective interventions for prevention and treatment of delirium	October 2007	Patients aged 65 or older with delirium or at risk of developing delirium	Educational staff, multicomponent intervention	Delirium prevention and treatment	6/11	Yes
Inouye 2014 [56]	To provide an overview of epidemiology, causes, and non-pharmacological and pharmacological management of delirium	August 2012	Any population	Pharmacological and non-pharmacological	Delirium prevention and treatment	13/29	Yes



Non-pharmac worth it?

Table 1. (Continued)

Systematic review	Aim	Search strategy date	Population	Intervention	Outcomes	Primary studies on non-pharmacological intervention included/total studies included in the review	Reviews also interested in pharmacological intervention
Mak 2010 [34]	To update evidence-based guidelines for the treatment of proximal femoral fractures	June 2008	Patients with proximal femoral fractures.	Time to surgery, thromboprophylaxis, anaesthesia, analgesia, prophylactic antibiotics, surgical fixation of fractures, nutritional status, mobilization, rehabilitation and daily proactive geriatrics consultation	Surgical wound closure, management of postoperative delirium, osteoporosis treatment and hip protectors	1/128	Yes
Marik 2006 [44]	To review the effect of an aging society on the utilization of critical care services and the physiology of aging as it applies to critical illness and prognosis and management issues in the intensive care unit	unclear	Older patients admitted in intensive care unit.	Daily proactive geriatrics consultation, bright light therapy, music therapy	Several outcomes of elderly patients admitted to intensive care unit including prevention of delirium	2/5	Yes
Milisen 2005 [67]	To determine the characteristics and efficacy of multicomponent intervention strategies for delirium	August 2003	Hospitalized older people	Educational staff, multicomponent intervention	Incidence, duration and severity of delirium, change in cognitive functioning, functional rehabilitation, length of stay and mortality.	7/7	No
Morrison 1998 [58]	To review the evidence for clinical decisions that medical consultants make for patients with hip fracture and to develop recommendations for care	June 1997	patients with hip fracture	Supportive reorientation and environmental manipulation	Prevention of delirium	1/9	No
Moyce 2014 [59]	To determine the efficacy of peri-operative interventions in decreasing the incidence of postoperative delirium.	January, March, August 2012	Patients receiving non-cardiac surgery	Any	Incidence of delirium within seven days of surgery	5/29	Yes

Table 1. (Continued)

Systematic review	Aim	Search strategy date	Population	Intervention	Outcomes	Primary studies on non-pharmacological intervention included/total studies included in the review	Reviews also interested in pharmacological intervention
Reston 2012 [60]	To evaluate the effectiveness and safety of in-facility multi-component delirium prevention programs	September 2012	Patients at high risk of developing delirium	Multicomponent programs	Incidence of delirium	13/19	No
Siddiqi 2007 [32]	To assess the effectiveness of interventions designed to prevent delirium	September 2006	Hospitalized patients	Educational staff, multicomponent intervention	Incidence, duration and severity delirium.	1/6	Yes
Skingley 2010 [33]	To identify how music and singing may be used therapeutically by nurses in caring for older people.	Unclear	People 65 years and over with osteoarthritis, delirium, sleep difficulties, chronic obstructive pulmonary disease	Music and singing	pain in patients with osteoarthritis, post-operative delirium prevention, sleep difficulties.	1/1	No
Weber 2004 [39]	To assess the etiology and risk factors for delirium and to review current strategies for prevention and treatment	unclear	unclear	Multicomponent intervention, multidisciplinary team	Incidence, duration and severity delirium,	4/13	Yes



Non-pharmac worth it?

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Table 3. Elements of the multicomponent non-pharmacological interventions across primary studies.

Study	Staff education	Orientation protocol	Avoidance of sensory deprivation	Multi-disciplinary team	Sleep protocol	Early mobilization	Hydration	Nutrition	Drug list review	Oxygen delivery	Pain control	Elimination of unnecessary medications
Lundstrom 2007	X				X	X		X		X	X	
Marcantonio 2001						X	X	X		X	X	X
Deschodt 2012				X		X	X	X				X
Björkelund 2010						X	X	X		X	X	X
Milisen 2001	X										X	
Wong 2005		X	X			X	X			X	X	X
Harari 2007	X					X		X			X	
Chen 2011						X		X				
Williams 1985	X	X	X			X					X	
Martinez 2012		X	X									
Inouye 1999	X	X	X		X	X	X	X				
Vidan 2009	X	X	X		X	X	X	X	X			
Yoo 2013	X	X	X	X	X	X	X	X	X			
Caplan 2007		X	X				X	X				
Skrobik 2010	X	X									X	
*Cole 1994												
*Cole 2002		X	X			X						
*Pitkala 2006		X				X	X	X	X			X
*Lundstrom 2005	X											

Study	Regulation of bowel/bladder function	Prevention, early detection, and treatment of major postoperative complications	Environmental stimuli	treatment of agitated delirium	Delirium prevention, detection, treatment	Teamwork	Individual care planning	Secondary prevention of falls and fractures	Osteoporosis prophylaxis	Family education	Family support	therapeutic activities protocol
Lundstrom 2007	X	X			X	X	X	X	X			
Marcantonio 2001	X	X	X	X								
Deschodt 2012	X	X	X	X								



Non-pharmac worth it?

Table 3. (Continued)

Study	Regulation of bowel/bladder function	Prevention, early detection, and treatment of major postoperative complications	Environmental stimuli	treatment of agitated delirium	Delirium prevention, detection, treatment	Teamwork	Individual care planning	Secondary prevention of falls and fractures	Osteoporosis prophylaxis	Family education	Family support	therapeutic activities protocol
Björkelund 2010					X							
Milisen 2001					X	X	X					
Wong 2005	X	X		X								
Harari 2007	X	X										
Chen 2011												X
Williams 1985	X		X		X		X					
Martínez 2012										X	X	
Inouye 1999												X
Vidan 2009												
Yoo 2013												
Caplan 2007												X
Skrobik 2010				X								
*Cole 1994						X	X					
*Cole 2002			X			X	X			X	X	
*Pitkala 2006			X				X					X
*Lundstrom 2005						X	X			X		

RCT, randomized controlled trial; CCT, controlled clinical trial; BAS, before-after study;

(*) studies that evaluated non-pharmacological interventions to treat delirium



Evidence

Cole MG, McCusker J, Bellavance F, et al: Systematic detection and multidisciplinary care of delirium in older medical inpatients: A randomized trial. *CMAJ* 167:753-759, 2002

Pitkala KH, Laurila JV, Strandberg TE, et al: Multicomponent geriatric intervention for elderly inpatients with delirium: A randomized, controlled trial. *J Gerontol A Biol Sci Med Sci* 61:176-181, 2006

Inouye SK, Bogardus ST Jr, Charpentier PA, et al: A multicomponent intervention to prevent delirium in hospitalized older patients. *N Engl J Med* 340:669-766, 1999 61.

Siddiqi N, Stockdale R, Britton AM, et al: Interventions for preventing delirium in hospitalised patients. *Cochrane Database Syst Rev* 2:CD005563, 2007

Gagnon P, Allard P, Gagnon B, et al: Delirium prevention in terminal cancer: Assessment of a multicomponent intervention. *Psychooncology* 21:187-194, 2012

Tammy T. Hshieh, M.D.1,4, Jirong Yue, M.D.2, Esther Oh, et al: Effectiveness of multi-component non-pharmacologic delirium interventions: A Meta-analysis *JAMA Intern Med.* 2015 April 1; 175(4): 512–520

William D Schweickert, Mark C Pohlman, Anne S Pohlman, Celerina Nigos, Amy J Pawlik, et al: Early physical and occupational therapy in mechanically ventilated, critically ill patients: a randomised controlled trial *Lancet* 2009; 373: 1874–82



Evidence



**Cochrane
Library**

Cochrane Database of Systematic Reviews

Interventions for preventing delirium in hospitalised non-ICU patients (Review)

Siddiqi N, Harrison JK, Clegg A, Teale EA, Young J, Taylor J, Simpkins SA

- **strong evidence** that multi-component interventions can **prevent** delirium in both medical and surgical settings
- less robust evidence they **reduce the severity** of delirium
- evidence that **monitoring the depth of anaesthesia** can reduce the occurrence of delirium after general anaesthetic
- inconclusive evidence about their effect on **the duration** of delirium
- no beneficial effects on **mortality** or health-related quality of life



Evidence

The Scottish Intercollegiate Guidelines Network (SIGN) 157: Guidelines on Risk Reduction and Management of Delirium

strongly recommended to implement nonpharmacologic interventions in the routine care of patients who are at risk for delirium

The following components should be considered as part of a package of care for patients at risk of developing delirium:

orientation and ensuring patients have their glasses and hearing aids;

promoting sleep hygiene;

early mobilization;

pain control;

*Vaurio LE, Sands LP, Wang Y, et al. Postoperative delirium: the importance of pain and pain management. Anesth Analg 2006; 102:1267–1273
patients with undertreated pain were nine times more likely to develop delirium*

maintaining optimal hydration and nutrition;

regulation of bladder and bowel function;

provision of supplementary oxygen, if appropriate.

all patients at risk of delirium should have a medication review conducted (farmakolog na ICU?)

in patients who have experienced delirium in ICU follow-up for psychological sequelae including cognitive impairment.

the use of earplugs

*The effect of earplugs during the night on the onset of delirium and sleep perception: a randomized controlled trial in intensive care patients
Bart Van Rompaey^{1,2*}, Monique M Elseviers³, Wim Van Drom^{3,4}, Veronique Fromont³ and Philippe G Jorens^{1,4}
Van Rompaey et al. Critical Care 2012, 16:R73 <http://ccforum.com/content/16/3/R73>*

Earplugs may be a useful instrument in the prevention of confusion or delirium. The beneficial effects seem to be strongest within 48 hours after admission. The relation between sleep, sound and delirium, however, needs further research.



Neverbální komunikace

Přístup ze směru, který není pro pacienta ohrožující - čelem.

Ne ruce v bok, zaťaté pěsti, ruce zkřížené na prsou.

Ne nečekané, rychlé pohyby.

Přiměřený oční kontakt /je emočně silný, nesmí trvat dlouho/.

Nabízet jistotu a podporu.

Verbální komunikace

Pacienta oslovovat příjmením, jako projev respektu

Místo „Tak co tady vyvádíte?“, použijte „Řekněte mi, prosím, co se stalo“

Na pacienta mluví vždy jen jeden

Pacienti v kritickém stavu potřebují častou, ale jednoduchou komunikaci

Možnost využití kompenzačních pomůcek

Pomoc zorientovat se v místě, čase a prostoru

Orientace, privetive prostředí, sleep cyklus

Organizace práce – laboratore a medikace v noci?

Orientace v prostoru



Podzimní listi na strope ☹





Iniciální kontakt



Rozhled pacienta/zevní stimulace/rodina





Summary

- **once present – dangerous**
- **difficult to treat**
- **multi-component interventions can prevent delirium and reduce its severity**

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