


Best Practice Statement from the American Geriatrics Society

“A health care professional trained in regional anesthetic injection may consider providing regional anesthetic at the time of surgery and postoperatively to improve pain control and prevent delirium in older adults.”

Journal of the American College of Surgeons 2015

Cochrane Database Review

“There is moderate-quality evidence that Bispectral Index (BIS)-guided anesthesia reduces the incidence of delirium compared to BIS-blinded anaesthesia or clinical judgement (RR 0.71, 95% CI 0.60 to 0.85; two studies; 2057 participants).”



Interventions for preventing delirium in hospitalized non-ICU patients (Review)
Siddiqi M, Henderson JM, Clagett G, Tsai H, Huang C, Tipton J, Songmin G

Prophylactic antipsychotics

Negative Studies	Positive Studies
Haldol 0.5mg tid in elderly hip surgery Kalisvaart et al. JAGS 2005	Haldol in non-cardiac surgery (23 vs. 15%) Wang et al. Crit Care Med 2012
MINDS trial: Haldol or Zyprexa in mixed ICU Girard et al. Crit Care Med 2010	Haldol 1mg tid in high risk ICU patients reduced delirium from 75% to 65% van den Boogard et al. Crit Care 2013)
	Risperidone (1mg SL) reduced delirium from 32% to 11%. Prakanrattana et al. Anaesth Int Care 2007

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“There is insufficient evidence to recommend for or against the use of antipsychotic medications prophylactically in older surgical patients to prevent delirium.”

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Depth of Anesthesia

RCCT: Light vs. Deep or Routine (BIS-guided)	Result
F.E. Sieber, K.J. Zakriya, A. Gottschalk, et al. Sedation depth during spinal anesthesia and the development of postoperative delirium in elderly patients undergoing hip fracture repair Mayo Clin Proc, 85 (2010), pp. 18-26	Deeper sedation: more delirium
M.T. Chan, B.C. Cheng, T.M. Lee, et al. BIS-guided anesthesia decreases postoperative delirium and cognitive decline J Neurosurg Anesthesiol, 25 (2013), pp. 33-42	BIS guided: less delirium
F.M. Radtke, M. Franck, J. Lendner, et al. Monitoring depth of anaesthesia in a randomized trial decreases the rate of postoperative delirium but not postoperative cognitive dysfunction Br J Anaesth, 110 (2013), pp. 198-205	BIS guided: less delirium

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“The anesthesia practitioner may use processed electroencephalographic monitors of anesthetic depth during intravenous sedation or general anesthesia of older patients to reduce postoperative delirium.”

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In your opinion, which is more important for the risk of post-op delirium? (no right answer)

Depth of anesthesia

Choice of anesthetic agent

Both

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Comparing Agents: no difference

Study	Surgery	Intervention	Result
Nishikawa 2004	Abdominal	Propofol vs. Sevo (all with epidural)	No difference (delirium)
Hudetz 2009	Cardiac	Additional ketamine (0.5 mg /kg)	3.4% vs. 31% (delirium)
Royse 2011	Cardiac	Propofol vs. Des	No difference (POCD)
Leung 2006	Non-cardiac	Additional nitrous	No difference (delirium & POCD)

Nishikawa Acta Anaesth Scand 2004
Hudetz J Card Vasc Anesth 2009
Royse Anaesthesia 2011
Leung BJA 2006

Dexmedetomidine

Days after surgery	Placebo group (%)	Dexmedetomidine group (%)
1	~14	~5
2	~11	~5
3	~10	~4
4	~5	~3
5	~3	~2
6	~2	~1
7	~2	~1

Number at risk:
 Placebo group: 320, 349, 346, 341, 323, 320, 290
 Dexmedetomidine group: 320, 349, 342, 330, 317, 286, 267

- Dexmedetomidine has been extensively studied as a post-operative sedative to reduce delirium.

Su x et al, Lancet 2016

Following uneventful hip replacement with regional and light sedation, the patient is awake, conversant and comfortable.

Which is true?

The patient is at ongoing risk of developing post-op delirium

Delirium presents in the immediate post-op period

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On post-op day 1:

It is time to assess for physical therapy and ambulation to prevent delirium

short-acting opiate PCA with demand-only administration facilitates ambulation and prevents delirium

Care pathways with a geriatric specialist are more effective than general medical care to prevent delirium

The first line of therapy for acute confusion and agitation is a newer generation anti-psychotic

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Pain and post-op delirium

Oral opioids vs IVPCA:
(OR, 0.4; 95% CI 0.2 to 0.7)

Pain Severity	Risk of Delirium
Moderate	OR 2.2 (1.2 – 4)
Severe	OR 3.7 (1.5 – 9)

Vaurio, L.E et al, Anesthesia and Analgesia 2006

Geriatrician consult

- Marcantonio et al
 - 126 patients > 65 y/o admitted for emergent surgical repair of a hip fracture
 - Geriatrician vs. usual care
- Result: Improved rates of delirium in the intervention arm (32% vs. 50%; $p=0.04$)

Marcantonio et al J Am Geriatr Soc. 2001



Most effective prevention: non-pharmacologic

1. **Sensory enhancement** (glasses, hearing aids)
2. **Mobility enhancement** (ambulating)
3. **Cognitive orientation** and therapeutic activities
4. **Pain control**
5. **Cognitive stimulation**
6. **Communication standards** to prevent the escalation of behaviors
7. **Nutrition and fluid repletion**
8. **Sleep enhancement** (nonpharmacologic)
9. **Medication review**
10. Daily rounding by an interdisciplinary team to reinforce the interventions

Postoperative Delirium in Older Adults: Best Practice Statement from the American Geriatrics Society
Inouye, Sharon K, et al.
Journal of the American College of Surgeons, Volume 220, Issue 2, 136 - 148.e1



In the event of acute delirium:

1. First line: Non-pharmacologic interventions
2. When pt is not agitated, medications are not indicated.
3. Agitated self harming pts failing non-pharmacologic interventions
 - Lowest effective dose antipsychotic
 - Lowest effective dose benzo if antipsychotic fails



Take-home

- Delirium: common
- Delirium: harmful
- Delirium: preventable

Thank You!

