Dexdor i obstetrisk anestesi

- Hype, hopp eller framtid

Andrea Kollmann Camaiora

Akademiska Sjukhuset

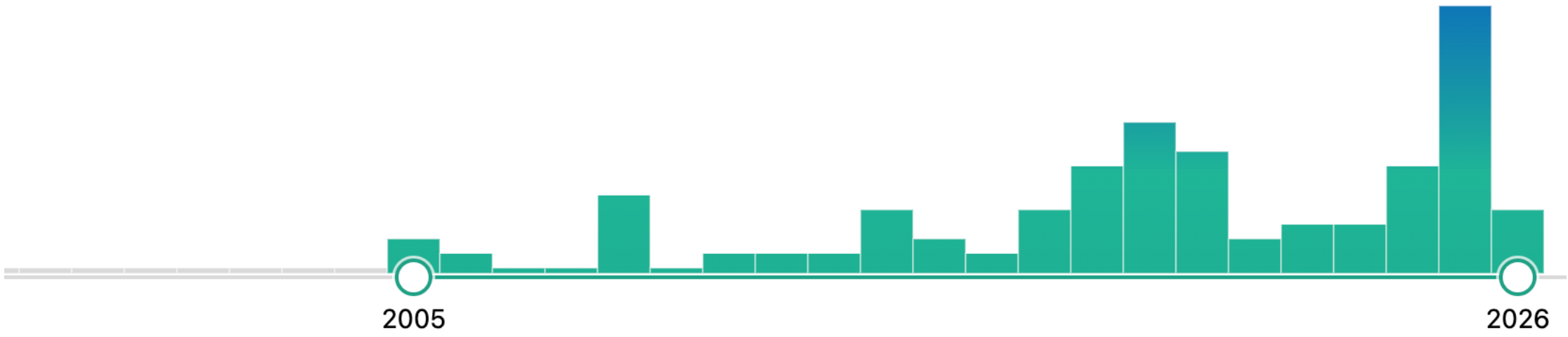
Uppsala, Sweden

The growing interest in dexmedetomidine for obstetric use

- Evaluate its clinical applications, current evidence, and limitations
- Relevance to daily practice and high-risk scenarios

- Why Dex in obstetrics
    - Sedative and analgesic without respiratory depression
    - Off-label but increasingly studied
    - Sympatholytic, anxiolytic
    - Potentiation of local anesthetics
    - Clinical interest growing in labor and cesarean delivery

Publications in the last 20 years



Safety profile & Maternal-Fetal Considerations

- Hemodynamic effects:
  - Bradycardia, hypotension – dose-related
  - A large dose can cause a hypertensive episode due to stimulation of alpha 2B receptor
- Preservative free
- Maternal / fetal ratio of 0.77, high placental retention with negligible placental transfer
- Neonatal outcomes: Apgars, sedation scores, NICU admission – mostly reassuring
- All uses in obstetric anesthesia in EU & US are off-label.
  - Both the FDA and the European Commission recommend it should only be used during pregnancy if the potential benefits justify the potential risk to the fetus and should not be used during pregnancy unless clearly necessary

Clinical applications in obstetrics

Labor analgesia	Cesarean section	General anesthesia	Shivering
PDPH	Post CS pain	PPD	High-risk cases

Labor analgesia

- Very limited number of studies
- Seems safe
- The dose appears to be around 0.4 µg/ml
- Dex + Suf + Rop combo was most effective regime for alleviating labor pain
- All articles come from the same geographical region

Cesarean section – IT usage

- Dex 5µg potentiates hyperbaric bupivacaine by 24-31%
- Unclear effect on onset of sensory & motor block, but very limited c
- Time for sensory & motor block regression was significantly longer
- Improved intraoperative conditions
- Improved quality of postoperative analgesia
  - Consistently low VAS scores

Meta-Analysis > Eur Rev Med Pharmacol Sci. 2024 Aug;28(15):4067-4079.
doi: 10.26355/eurrev_202408_36638.

Is intrathecal bupivacaine plus dexmedetomidine superior to bupivacaine in spinal anesthesia for a cesarean section? A systematic review and meta-analysis

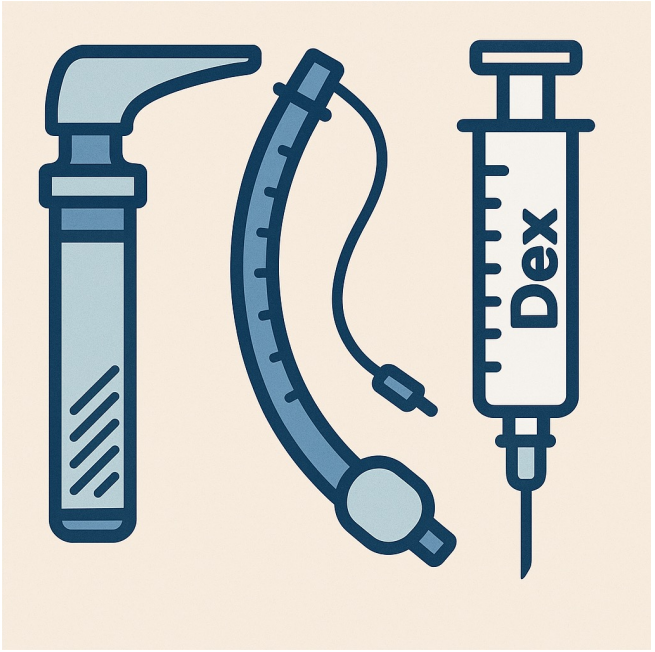
L G Giaccari [1], F Coppolino, C Aurilio, M C Pace, M B Passavanti, V Pota, P Sansone

Cesarean section – IV usage

- As suplemental analgesia
  - No difference in conversion to GA (1 Retrospective review)
- Increased risk for bradycardia
- Adjuvant to NAD to prevent hypotension (1 RCT)
  - Via α2B receptor
- Faster GI recovery (1 RCT)

General anesthesia

- Effective in attenuating maternal hemodynamic response
  - Dex vs Remi: remifentanil demonstrated better control of hemodynamic stability, while dexmedetomidine demonstrated better neonatal Apgar scores, postoperative analgesia, and decreased catecholamine release.
- Reduced cortisol levels (1 RCT)
- Lower Sevo requirements (1 RCT)
- Seems safe: No significant differences in fetal HR, UA / UV blood gas, Apgar, NACS (Neurologic Adaptive Capacity Scores)



Shivering

- α2 adrenoreceptor agonists have a potential prophylactic effect on shivering. Dex effect on the spinal cord can lead to inhibition of sympathetic activity and central thermoregulation which could be another mechanism of action for shivering

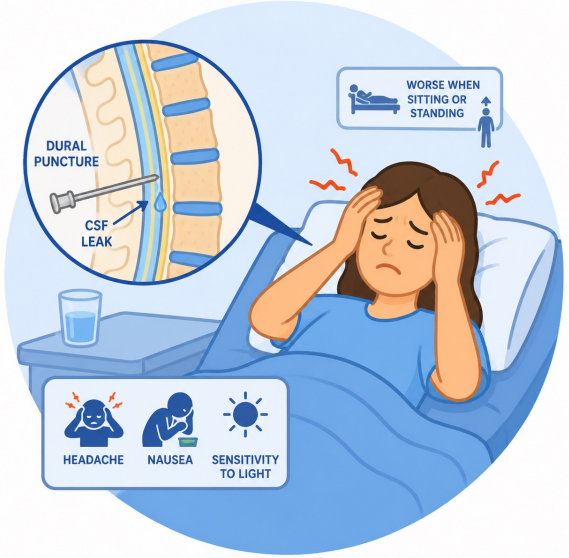
- IT Dex 5µg significantly reduced the incidence and intensity of shivering
- IV Dex 30µg bolus effectively decreases the duration of shivering
- Metanalysis: Dex was the top-ranked intervention for time to shivering control, shivering recurrence and maternal nausea
    - Dex, tramadol, nalbuphine, meperidine, ondansetron & clonidine

Review > J Clin Anesth. 2025 Jan:100:111680. doi: 10.1016/j.jclinane.2024.111680.
Epub 2024 Nov 27.

Comparative efficacy of intravenous treatments for perioperative shivering in patients undergoing caesarean delivery under neuraxial anaesthesia: A systematic review and Bayesian network meta-analysis of randomised-controlled trials

Guillermina Ferrea [1], David T Monks [2], Preet Mohinder Singh [2], Kelly Fedoruk [3], Narinder Pal Singh [4], Lindsay Blake [5], Brendan Carvalho [3], Pervez Sultan [6]

PDPH



- Novel therapeutic option
- May provide a non-invasive, highly accessible Tx

- RCT 90 PDPH patients: Nebulized DEX, Nebulized fentanyl and placebo.
  - Pain scores were significatly lower in the DEX group, with less requirements of additional analgesic therapy. Fentanyl was not better than placebo.

> Indian J Anaesth. 2024 Feb;68(2):159-164. doi: 10.4103/ija.ija_789_23. Epub 2024 Jan 29.

Comparative evaluation of nebulised dexmedetomidine vs fentanyl for the treatment of post-dural puncture headache (PDPH) in parturients after caesarean section under spinal anaesthesia: A randomised controlled study

Amarjeet Kumar [1], Chandni Sinha [1], Kunal Singh [1], Monika Anant [2], Ajeet Kumar [1], Poonam Kumari [1]

Post cesarean section pain

- RCT 120 patients, elective CS, spinal anesthesia
  - Suf PCA, Dex bolus + Suf PCA, Dex bolus + Suf PCA + Dex inf
- Dex can reduce sufentanil consumption and improve patient satisfaction

Randomized Controlled Trial > Eur J Anaesthesiol. 2014 Apr;31(4):197-203.
doi: 10.1097/EJA.0000000000000011.

Effect of dexmedetomidine combined with sufentanil for post-caesarean section intravenous analgesia: a randomised, placebo-controlled study

Yuyan Nie [1], Yuqi Liu, Qingyan Luo, Shaoqiang Huang

Post partum depression

- RCT 600 elective CS, spinal anesthesia
  - 2 days postpartum iv infusion of either Sufentanil or Sufentanil + DEX.
- Significantly lower incidence of PPD in the group (16.3% vs 5.7%)

Randomized Controlled Trial > Pharmacotherapy. 2019 Oct;39(10):994-1004.
doi: 10.1002/phar.2320. Epub 2019 Sep 15.

Dexmedetomidine Alleviates Postpartum Depressive Symptoms following Cesarean Section in Chinese Women: A Randomized Placebo-Controlled Study

He-Ya Yu [1], Sai-Ying Wang [1], Cheng-Xuan Quan [1], Chao Fang [1], Shi-Chao Luo [1], Dan-Yang Li [1], Shan-Shan Zhen [1], Jia-Hui Ma [1], Kai-Ming Duan [1]

High-risk cases

Case Reports > Int J Obstet Anesth. 2009 Jul;18(3):262-7. doi: 10.1016/j.ijoa.2008.08.001.
Epub 2009 Jan 20.

Cesarean section and primary pulmonary hypertension: the role of intravenous dexmedetomidine

H Toyama [1], T Wagatsuma, Y Ejima, M Matsubara, S Kurosawa

Case Reports > Int J Obstet Anesth. 2018 May:34:108-112. doi: 10.1016/j.ijoa.2018.02.003.
Epub 2018 Feb 9.

Dexmedetomidine, high-flow nasal oxygen and sugammadex-reversal of rocuronium: overcoming anaesthetic challenges in a parturient with congenital muscular dystrophy presenting for caesarean section

M Creaney [1], R M Moriarty [2], M Milner [3], C Murphy [4]

Case Reports > Int J Obstet Anesth. 2009 Jul;18(3):258-61. doi: 10.1016/j.ijoa.2008.10.002.
Epub 2009 Feb 1.

Intravenous dexmedetomidine as an adjunct for labor analgesia and cesarean delivery anesthesia in a parturient with a tethered spinal cord

A Palanisamy [1], R J Klickovich, M Ramsay, D W Ouyang, L C Tsen

Case Reports > A A Pract. 2025 Feb 28;19(3):e01926.
eCollection 2025 Mar 1.

Neuraxial Analgesia and Anesthesia for Labor and Cesarean Delivery in a Patient with Juvenile Huntington Disease: A Case Report

Leonard J Soloniuk [1 2 3 4 5], Jonathan Jones [5], Christopher Baker [5], Mira Bishawi [5], Ioana Pasca [1 3 5 6], Ashish Sinha [3 7]

Affiliations + expand

PMID: 40019183 DOI: 10.1213/XAA.0000000000001926

Abstract

The rarity of Huntington's disease (HD) parturients implies that anesthesiologists have little exposure to the management of these patients. We explore techniques for the management of a 21-year-old parturient with symptomatic HD who underwent successful neuraxial anesthesia for labor and subsequent cesarean delivery. We provide guidance on perioperative medications for comorbidities associated with HD. Dexmedetomidine, which we administered neuraxially, appears to have significant potential for the perioperative diminution of choreiform movements. Current anesthetic management of HD cannot be informed by traditional research methodology and therefore much information must be gleaned from the limited available case reports.

Take-Home Messages

- DEX is a promising tool in obstetric anesthesia with multiple potential roles
- Safety appears acceptable with cautious, tailored use
- More research needed to guide standardization

Advancing Safer Care for Mothers