



FÖRLOSSNINGSSANALGESI

HANNAH LAFRENZ

VÅRDENHETSÖVERLÄKARE OP 2 SAHLGRENSKA UNIVERSITETSSJUKHUSET/ÖSTRA

Allmänt – förlossningssmärta

Icke-farmakologisk smärtlindring

Opioider. Inhalationsanestetika

Regional anesthesi- EDA, spinal

The background is a solid teal color with a subtle gradient. In the four corners, there are decorative white line-art patterns resembling circuit traces or neural network connections. These patterns consist of straight lines of varying lengths and angles, ending in small white circles.

” Stor skall jag göra din möda när du är havande, med smärta skall du föda dina barn.” (1 Mos 3:16)

HISTORIK

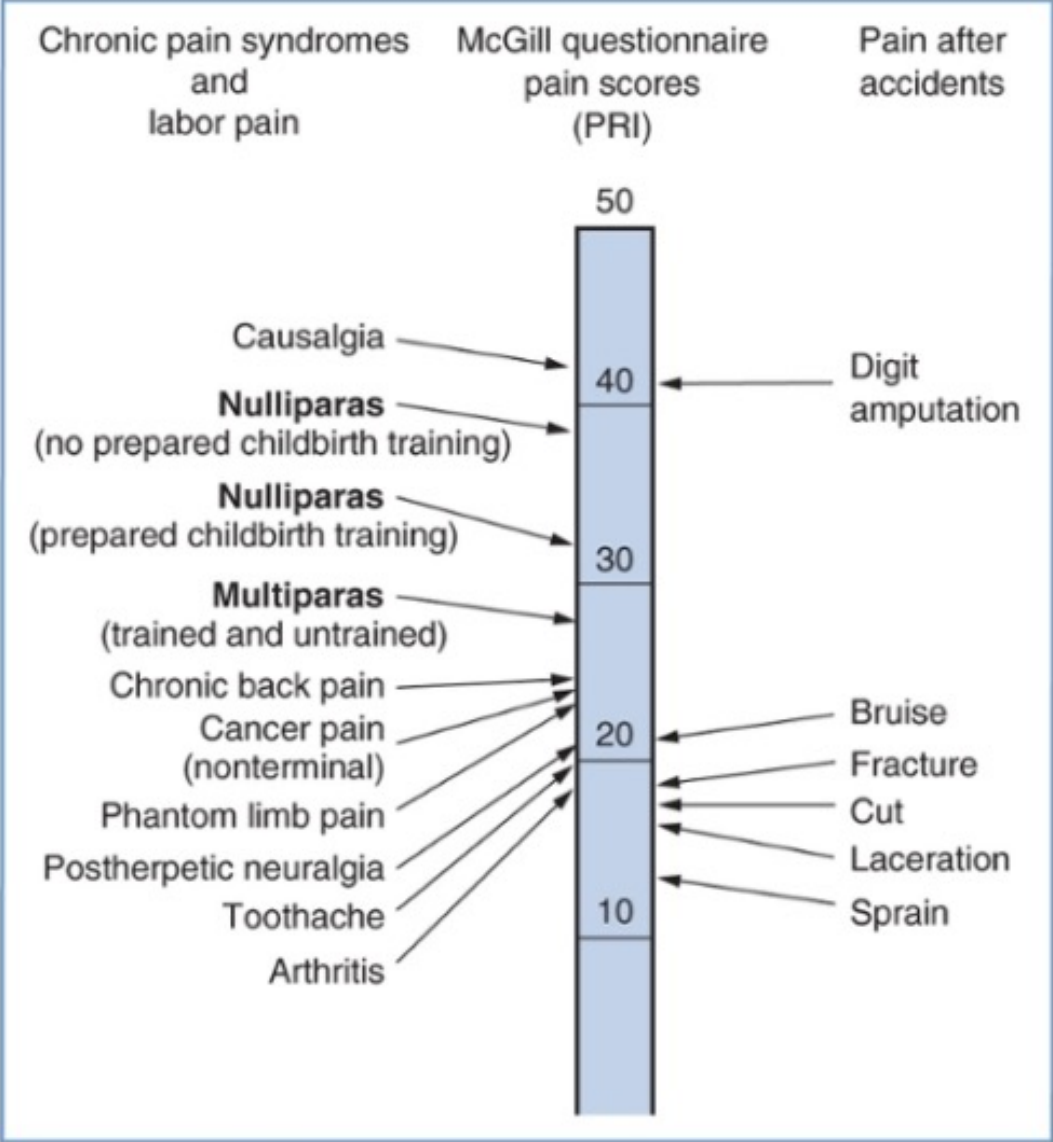
- Eter och kloroform. 1847
- Opioder. "Twilight sleep", 1920-talet
- Regional anestesi, 1960-talet
- Riksdagsbeslut 1971. Kvinnan har rätt till smärtlindring om hon så önskar

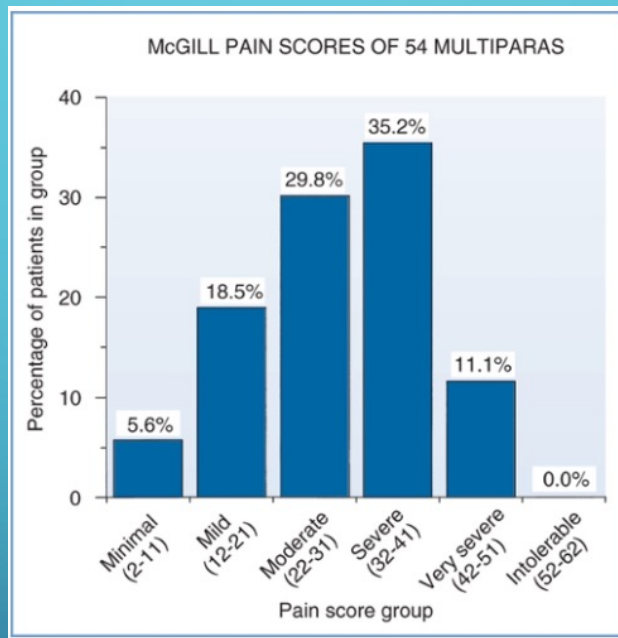
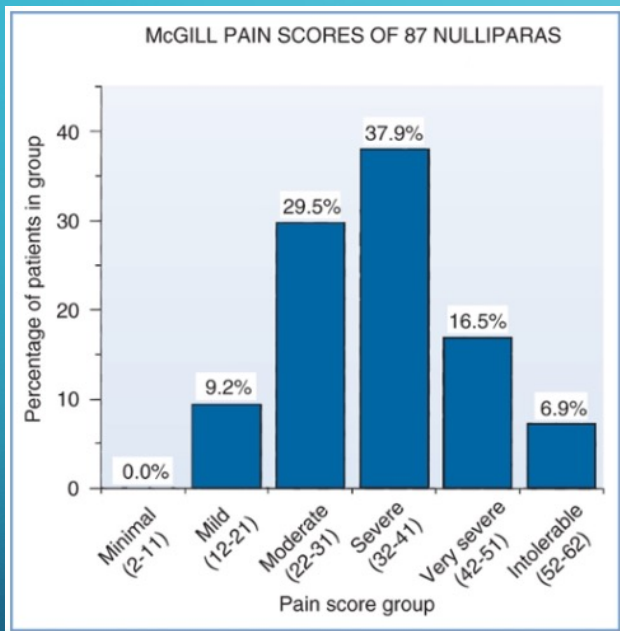
ÅSIKTERNA ÄR MÅNGA MEN...



The image features a dark blue gradient background with white, stylized circuit board traces in the corners. These traces consist of straight lines and right-angle turns, ending in small circles, resembling electronic components or data paths. The traces are located in the top-left, top-right, bottom-left, and bottom-right corners.

...att föda barn är ,för majoriteten av kvinnor, en smärtsam upplevelse!





- Förstföderskor upplever mer smärta än omföderskor

FÖRLOSSNINGSSMÄRTA

Öppningskede:

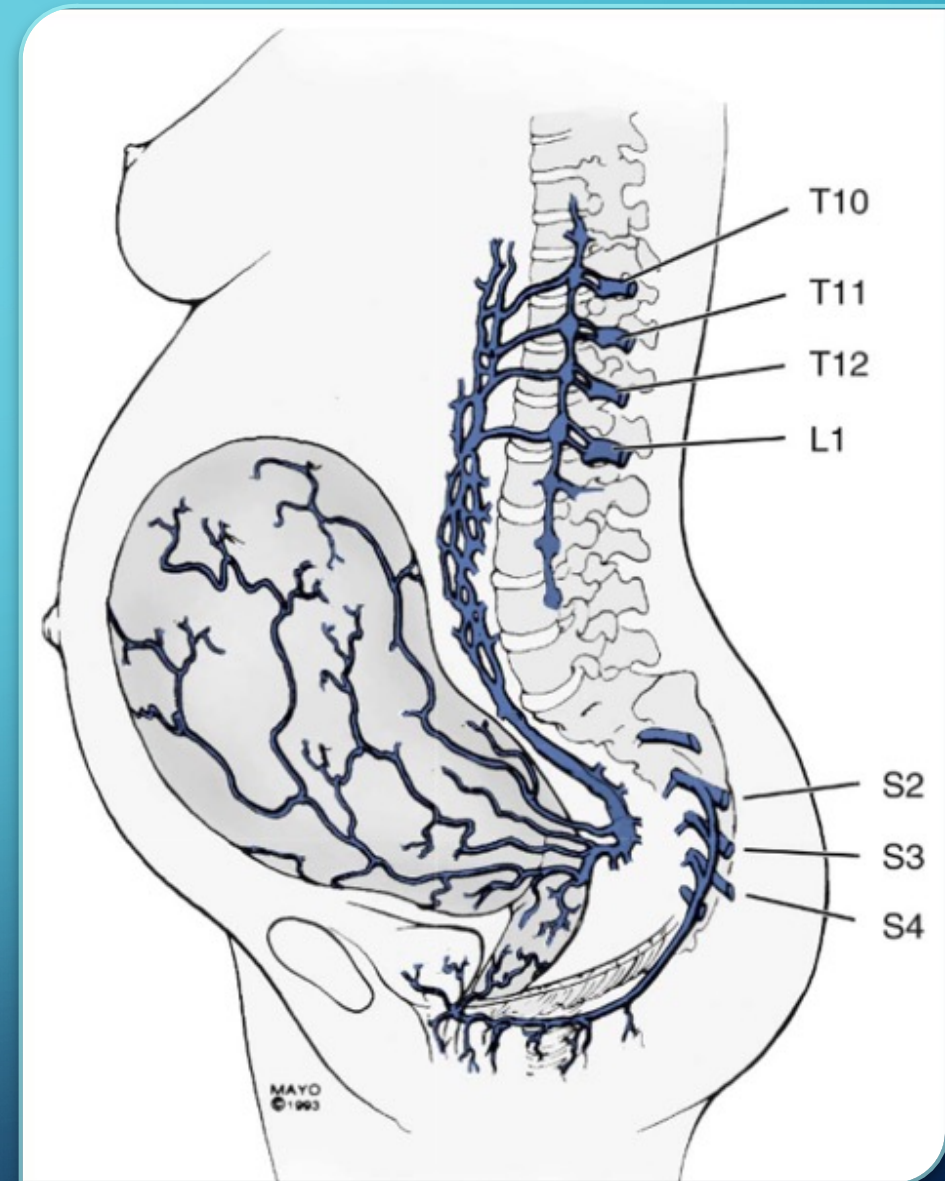
Afferenta C-fibrer. Visceral smärta.

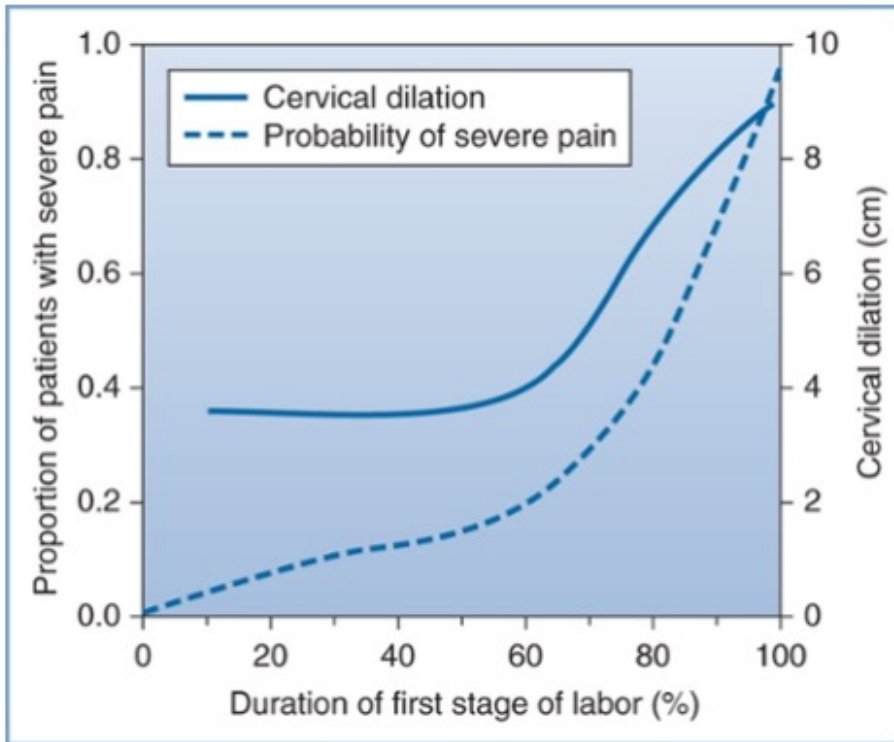
Th 10-L1

Utdrivningskede:

Afferenta A-deltafibrer. Somatisk smärta

S2-S4





- Smärtintensiteten ökar i takt med att cervix dilateras

The background is a dark blue gradient. In the four corners, there are decorative white line-art patterns resembling circuit boards or neural networks, with lines and small circles connecting them.

Den kvinna som vill ha smärtlindring skall få smärtlindring

IDEAL FÖRLOSSNINGSSANALGESI

- Säker för mor och barn
- Påverkar ej förlossningsförlopp
- Smärtlindrar över tid
- Få/inga biverkningar
- Lättarbetad

ICKE-FARMAKOLOGISK SMÄRTLINDRING

Viss evidens

- Mental förberedelse-utbildning. "Coping".
- Stödperson
- Bad
- Upprätt position

Ingen evidens

- Sterila kvaddlar
- TENS
- Massage
- Hypnos
- Aromaterapi

OPIOIDER

- Lätt att använda
- Billigt
- Kräver inte utbildad personal eller dyr utrustning
- Tradition



OPIOID GIVET SOM INTERMITTENT BOLUS

- Hög frekvens av biverkningar
- Passerar placenta – ökad risk för neonatal andningsdepression
- Dålig smärtlindring under förlossning

OPIOID-PCA UNDER FÖRLOSSNING

- Lägre doser krävs för att uppnå effekt
- Mindre risk för andningsdepression hos mor jmf med intermittent bolus
- Lägre dos > mindre mängd passerar placenta
- Lägre frekvens av illamående och kräkningar
- Ökad patientnöjdhet

REMIFENTANIL-PCA

- Låg fettlöslighet
- Liten distributionsvolym
- Snabbt tillslag (20-30 s, peak 90 s)
- Inga aktiva metaboliter

Ideal drog?

Kan vara ett alternativ om regional anestesi inte finns att tillgå eller är kontraindicerad

THE LANCET

Volume 392, Issue 10148, 25–31 August 2018, Pages 662–672



Articles

Intravenous remifentanyl patient-controlled analgesia versus intramuscular pethidine for pain relief in labour (RESPITE): an open-label, multicentre, randomised controlled trial

Matthew J A Wilson MD ^a, Prof Christine MacArthur PhD ^b, Catherine A Hewitt MSc ^b, Kelly Handley PhD ^b, Prof Fang Gao MD ^c, Leanne Beeson BSc ^b, Prof Jane Daniels PhD ^d on behalf of the RESPITE Trial Collaborative Group [†]

Remifentaniil vs övriga opioider

- Bättre smärtlindring
- Större patientnöjdhet

BMJ. 2015; 350: h846.

PMCID: PMC4353278

Published online 2015 Feb 23. doi: [10.1136/bmj.h846](https://doi.org/10.1136/bmj.h846)

PMID: [25713015](https://pubmed.ncbi.nlm.nih.gov/25713015/)

Patient controlled analgesia with remifentanyl versus epidural analgesia in labour: randomised multicentre equivalence trial

[Liv M Freeman](#), gynaecologist,¹ [Kitty W Bloemenkamp](#), gynaecologist,¹ [Maureen T Franssen](#), gynaecologist,² [Dimitri N Papatsonis](#), gynaecologist,³ [Petra J Hajenius](#), gynaecologist,⁴ [Markus W Hollmann](#), professor of anaesthesiology,⁵ [Mallory D Woiski](#), gynaecologist,⁶ [Martina Porath](#), gynaecologist,⁷ [Hans J van den Berg](#), anaesthesiologist,⁸ [Erik van Beek](#), gynaecologist,⁹ [Odette W H M Borchert](#), anaesthesiologist,¹⁰ [Nico Schuitemaker](#), gynaecologist,¹¹ [J Marko Sikkema](#), gynaecologist,¹² [A H M Kuipers](#), anaesthesiologist,¹³ [Sabine L M Logtenberg](#), midwife/PhD candidate,¹⁴ [Paulien C M van der Salm](#), gynaecologist,¹⁵ [Katrien Oude Rengerink](#), epidemiologist,⁴ [Enrico Lopriore](#), neonatologist,¹⁶ [M Elske van den Akker-van Marle](#), assistant professor of health economics,¹⁷ [Saskia le Cessie](#), associate professor of medical statistics,¹⁸ [Jan M van Lith](#), professor of obstetrics,¹ [Michel M Struys](#), professor of anaesthesiology,¹⁹ [Ben Willem J Mol](#), professor of obstetrics,²⁰ [Albert Dahan](#), professor of anaesthesiology,²¹ and [Johanna M Middeldorp](#), gynaecologist¹

Conclusion In women in labour, patient controlled analgesia with remifentanyl is not equivalent to epidural analgesia with respect to scores on satisfaction with pain relief. Satisfaction with pain relief was significantly higher in women who were allocated to and received epidural analgesia.

Remifentaniil vs EDA

- EDA ger bättre smärtlindring
- Patientnöjdhet många gånger lika hög

Remifentanil for labor analgesia: an evidence-based narrative review

M. Van de Velde and B. Carvalho

International Journal of Obstetric Anesthesia, 2016-02-01, Volume 25, Pages 66-74, Copyright © 2015 Elsevier Ltd

Highlights

- Remifentanil patient-controlled intravenous analgesia is increasingly used for pain relief in labor.
- Remifentanil provides inferior pain relief when compared to neuraxial analgesia.
- Remifentanil can produce respiratory depression in parturients.
- Remifentanil should only be used with appropriate safety precautions.

PROBLEM

- Dosering
- Timing med värkar
- Risk för andningsdepression
- Personalfråga. Kräver 1:1 vård

INHALATIONSANESTESI

LUSTGAS:

- Ger smärtlindring..
- ..men sämre än EDA
- Hög patientnöjdhet
- Ingen påverkan på foster
- Säkert
- Miljöpåverkan

SEVOFLURAN:

Ger smärtlindring men hög frekvens av amnesi. Begränsningar i form av utrustning, miljöpåverkan.

REGIONAL ANESTESI

- EDA
- CSE – combined spinal epidural
- DPE – dural puncture epidural
- Förlossningsspinal



EDA

- Välbeprövat
 - Bra evidens
 - God smärtlindring.
 - Hög patientnöjdhet (och partner/medföljare)
- 

EDA

Indikation:

- Kvinna som önskar smärtlindring
- Gravida där GA är kontraindicerat eller bör undvikas (obesa, svår luftväg, komorbiditet tex PE eller hjärtsjd)

Kontraindikationer:

- Patientvägran eller samarbetssvårigheter (språkförbistring)
- Hypovolemi
- Koagulationsrubbing
- Infektion vid instickställe



PATIENTFALL

- Barnmorska ringer 00.30 och önskar en EDA till en förstföderska öppen 3 cm. Frisk, normal graviditet pratar inte mkt svenska. ”vi vill starta oxytocin efter EDA”
- Patienten kraftigt smärtpåverkad. Förstår ingen svenska. Maken tolkar. Många frågor om förlamning, risk för kejsarsnitt och annat..
- Kontraindicerat pga språkförbistring?
Barnmorska missnöjd och säger att förlossningen inte kan fortsätta utan EDA
- EDA läggs



PATIENTFALL

- 01.45 kontroll om EDA funkar
- Mamma smärtfri
- Pratar god svenska

ÖNSKAN OM EDA, TILLSE ATT:

- Rutin finns
- Få kort anamnes
- Fri venväg finns
- Utgångsbltr taget
- Öppningsgrad?

Review > Cochrane Database Syst Rev. 2014 Oct 9;(10):CD007238.

doi: 10.1002/14651858.CD007238.pub2.

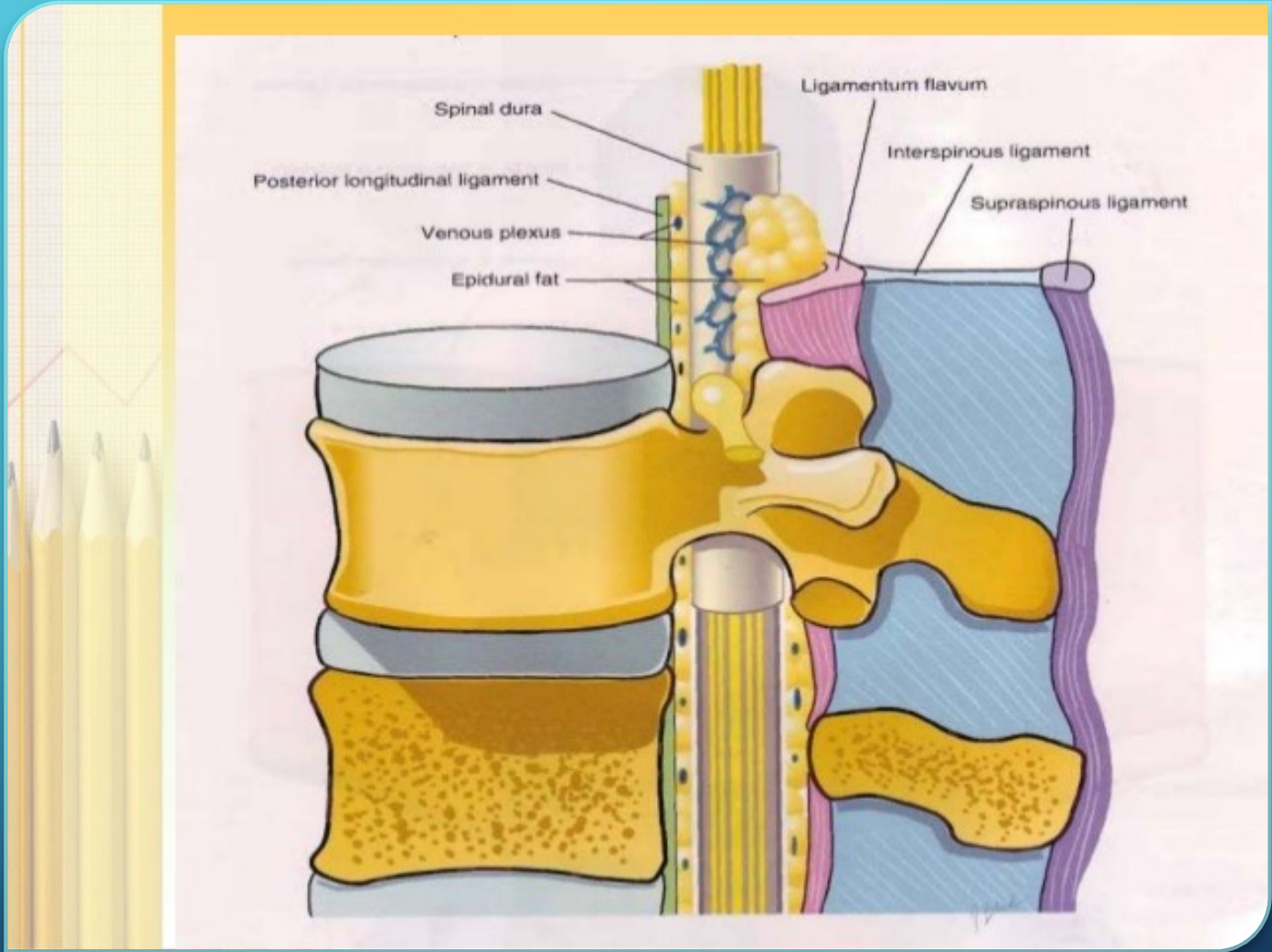
Early versus late initiation of epidural analgesia for labour

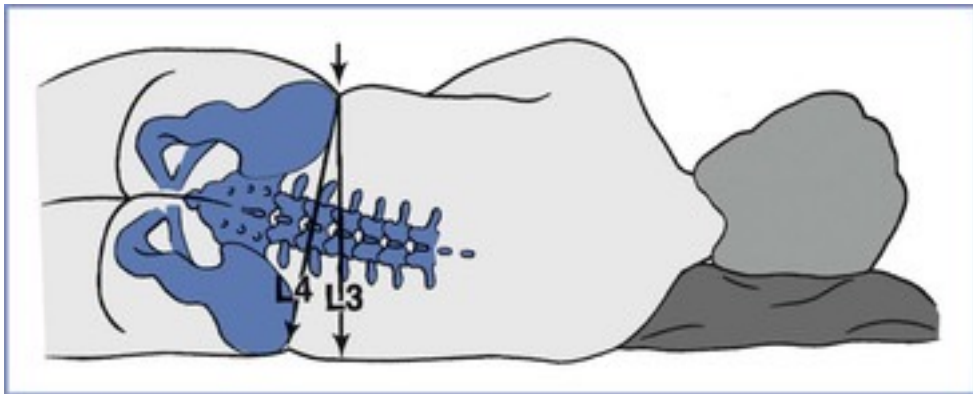
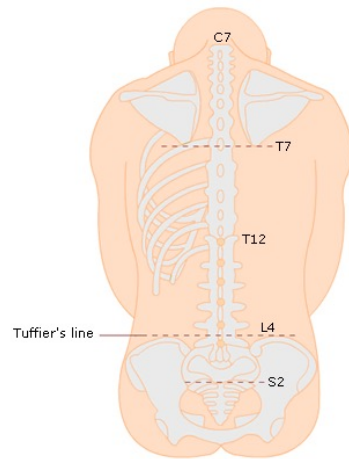
Ban Leong Sng ¹, Wan Ling Leong, Yanzhi Zeng, Fahad Javaid Siddiqui, Pryseley N Assam, Yvonne Lim, Edwin S Y Chan, Alex T Sia

Affiliations + expand

PMID: 25300169 DOI: 10.1002/14651858.CD007238.pub2

Authors' conclusions: There is predominantly high-quality evidence that early or late initiation of epidural analgesia for labour have similar effects on all measured outcomes. However, various forms of alternative pain relief were given to women who were allocated to delayed epidurals to cover that period of delay, so that it is hard to assess the outcomes clearly. We conclude that for first time mothers in labour who request epidurals for pain relief, it would appear that the time to initiate epidural analgesia is dependent upon women's requests.



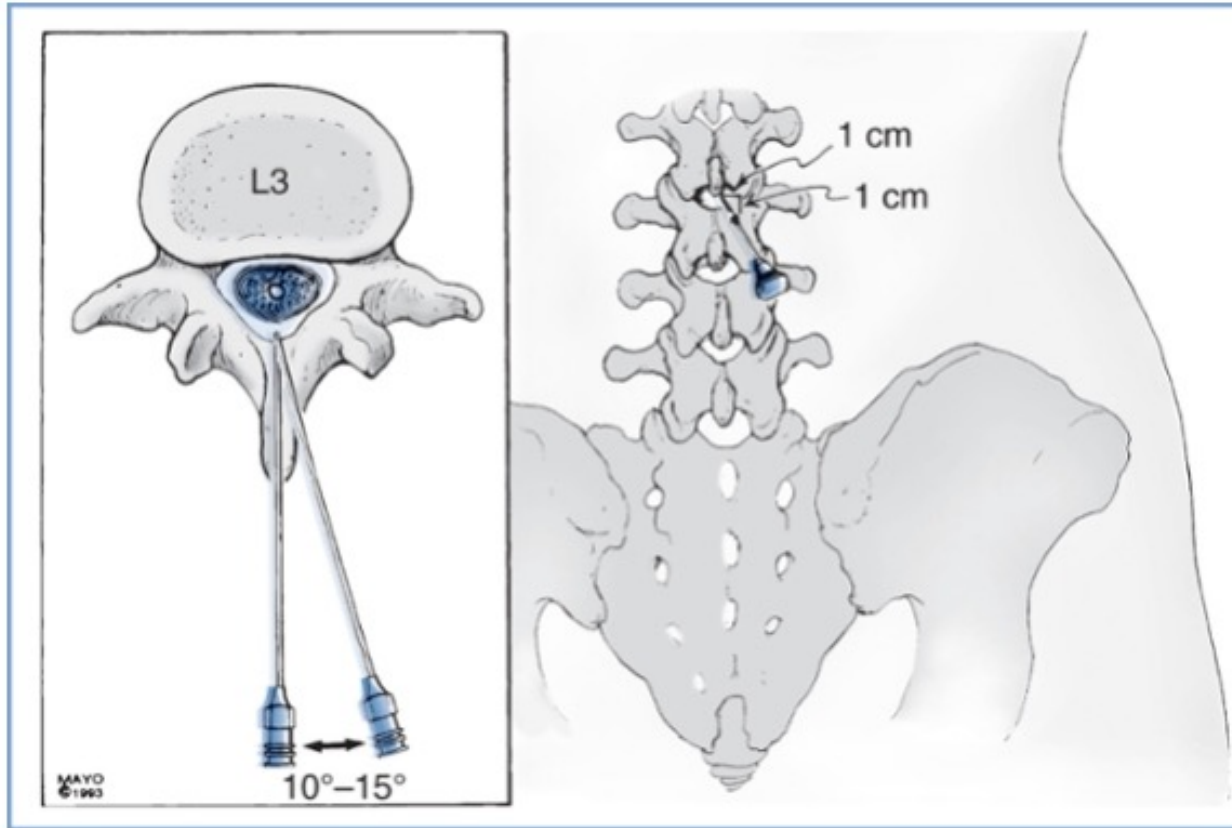


POSITION

- Sittande
- Liggande

NIVÅ

- L2/L3 i första hand
- L3/L4, L1/L2



TEKNIK

- Median
- Paramedian

Bli bra på en, gör dig bekväm med båda

BMI (kg/m ²)	ESTIMATED DISTANCE (CM)			
	White (n = 708)	Asian/British Asian (n = 24)	Black/British Black (n = 127)	Chinese (n = 126)
20	4.7	4.5	5.0	4.4
25	5.3	5.1	5.7	4.7
30	6.0	5.7	6.5	5.1
35	6.6	6.2	7.2	5.4
40	7.2	6.8	8.0	5.7

Estimated distance from skin to lumbar epidural space after adjusting for body mass index (BMI) and race.

LOR

- NaCl
- Hängande droppe
- Luft

OBSTETRIC ANESTHESIA

SECTION EDITOR

RICHARD J. PALAHNIUK

The Optimal Distance That a Multiorifice Epidural Catheter Should Be Threaded into the Epidural Space

Yaakov Beilin, MD, Howard H. Bernstein, MD, and Barbara Zucker-Pinchoff, MD

The Departments of Anesthesiology and Obstetrics, Gynecology and Reproductive Sciences, Mount Sinai School of Medicine, New York, New York

Complications can occur during epidural placement for women in labor. As many as 23% of epidural anesthetics may not provide satisfactory analgesia. The cause of this may be technical. This study was undertaken to determine the optimal distance that a multiorifice catheter should be threaded into the epidural space to maximize analgesia and minimize complications. One hundred women in labor were enrolled in this prospective, randomized, and double-blind study. Patients were randomly assigned to have the epidural catheter threaded 3, 5, or 7 cm into the epidural space. After placement of the catheter and administration of a test

dose with 3 mL of 0.25% bupivacaine, an additional 10 mL of 0.25% bupivacaine was administered in two divided doses. Fifteen minutes later, the adequacy of the analgesia was assessed by a blinded observer. We found that catheter insertion to a depth of 7 cm was associated with the highest rate of insertion complications while insertion to a depth of 5 cm was associated with the highest incidence of satisfactory analgesia. For women in labor who require continuous lumbar epidural anesthesia, we recommend threading a multiorifice epidural catheter 5 cm into the epidural space.

(Anesth Analg 1995;81:301-4)

KATETERLÄGE?

Intravasalt?

- Aspirera, hög sensitivitet med flerhålskateter om intravasalt
- Shahs test
- Testdos med adrenalin?

Intrathekalt?

- Testdos: ex Lidocain 30-40 mg alt första bolusdos i EDA
- CSF i kateter. Ev glukossticka
- Motorblockad
- Hypotoni
- Känsel yttersida fot – S1

DURAPUNKTION

Vad göra?

- Backa nålen, trä kateter?
- Lägga om på annan nivå?
- Lägga in en spinal kateter?

DURAPUNCTION

Insertion of an intrathecal catheter in parturients reduces the risk of post-dural puncture headache: A retrospective study and meta-analysis

Jiali Deng¹, Lizhong Wang¹, Yinfa Zhang¹, Xiangyang Chang¹, Xingjie Ma^{2*}

¹ Department of Anesthesia, Jiaying Maternity and Child Health Hospital, School of Medicine, Jiaying University, Jiaying, Zhejiang, China, ² Department of Cardiothoracic Surgery, First Hospital of Jiaying, School of Medicine, Jiaying University, Jiaying, Zhejiang, China

ORIGINAL ARTICLE

ELSEVIER
www.obstetanesesthesia.com

Insertion of an intrathecal catheter following a recognised accidental dural puncture reduces the need for an epidural blood patch in parturients: an Australian retrospective study

K. Rana,^a S. Jenkins,^b M. Rana^{a,b}

^aMedical School, The University of Adelaide, Australia

^bDepartment of Anaesthesia, Lyell McEwin Hospital, Haydown Rd, Elizabeth Vale, South Australia, Australia

DURAPUNKTION

Om intratekal kateter

- Riktlinje/rutin skall finnas
- Kateter, pump och rum skall märkas
- Obstetiker och barnmorska skall informeras

LÄKEMEDEL

Långverkande LA av amidtyp

- Bupivacain
- Ropivacain
- Levobupivacain

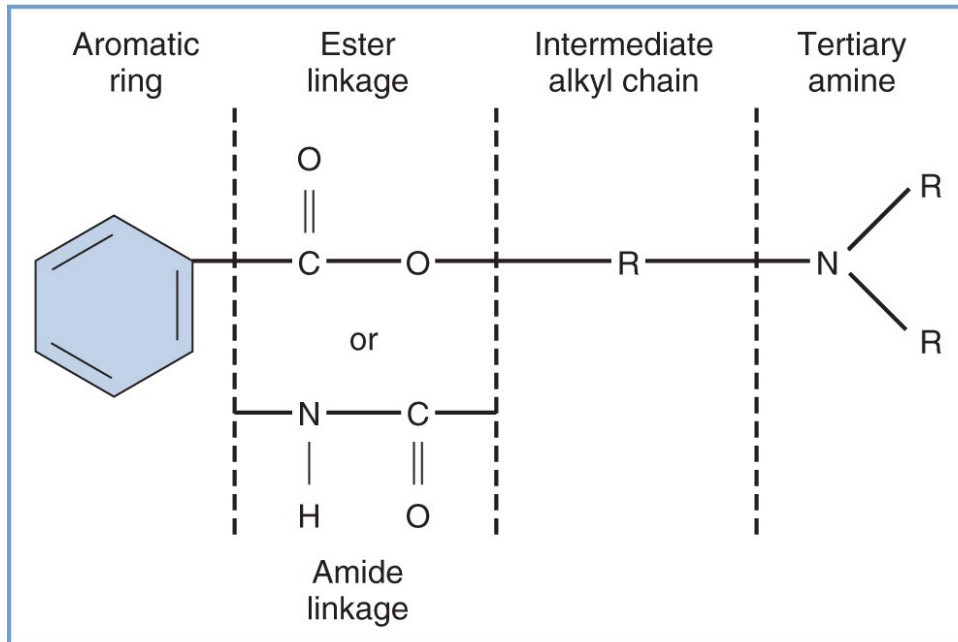
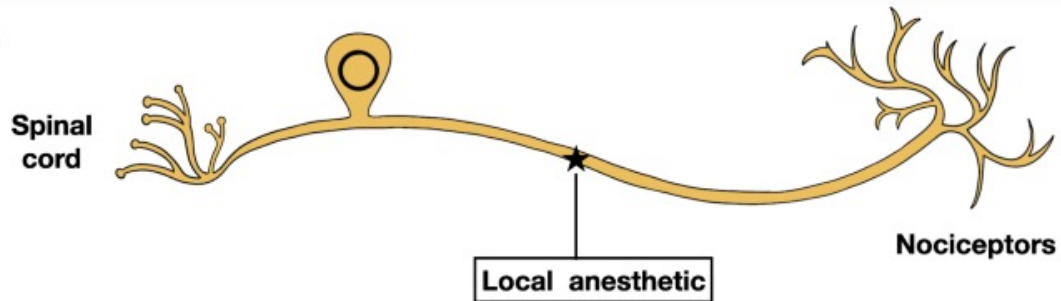
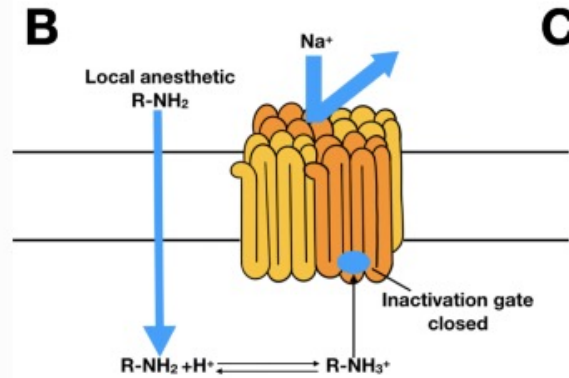


Fig. 1

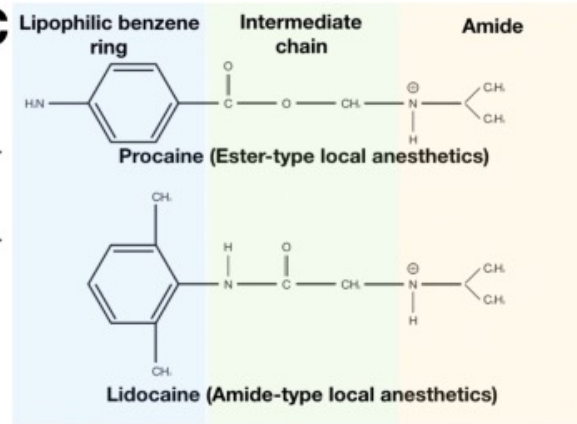
A



B



C



Functional and Structural Properties of LAs. **a, b** Demonstration of how LAs interact with voltage-gated sodium channel on neuron. **c** Typical structures of ester and amide LAs

VERKNINGSMEKANISM

DOS?

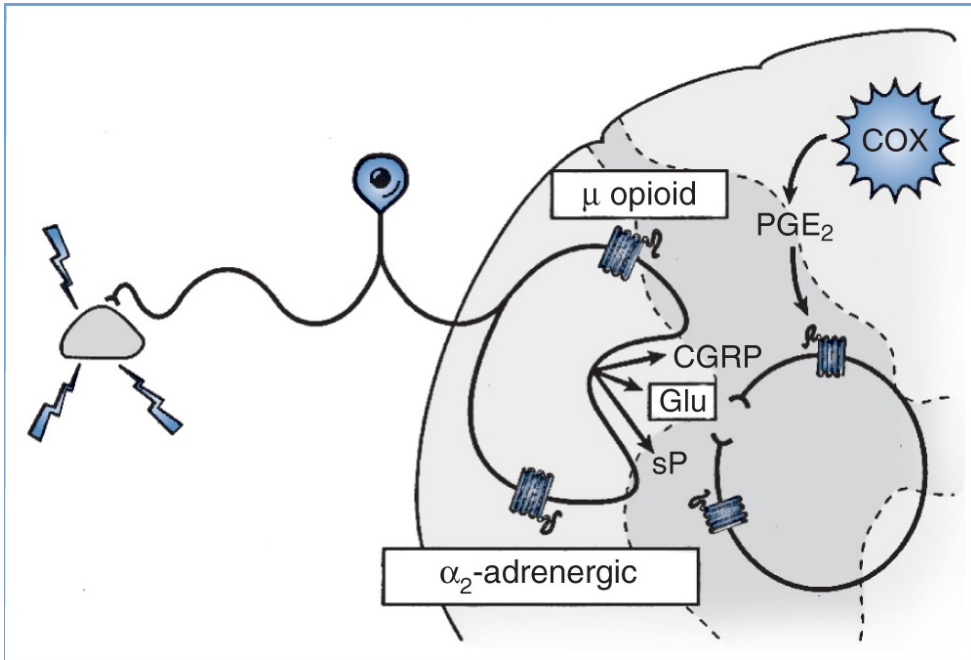
Eftersträva alltid så låg dos som möjligt

MLAC – Minimal Local Anesthetic Concentration

- MLAC lägre hos gravida varför epidurala och intrathekala doser bör reduceras
- MLAC ökar under förlossningsförloppet
- MLAC minskar om tillägg av opioid (synergistisk effekt)

OPIOID

- Ger snabbare anslag
- Förlänger durationen
- Förbättrar analgesin





För bästa smärtlindring med så få biverkningar som möjligt:

Kombinera långverkande LA med opioid

Stor volym med låg koncentration



ADMINISTRATION

- Intermittent bolus
- Kontinuerlig infusion
- PCEA – patient controlled epidural anesthesia
- PCEA+ infusion
- PIEB – Programmed intermittent epidural bolus

FULL TEXT ARTICLE



Programmed intermittent epidural boluses for maintenance of labor analgesia: an impact study

C.P. McKenzie, B. Cobb, E.T. Riley and B. Carvalho

International Journal of Obstetric Anesthesia, 2016-05-01, Volume 26, Pages 32-38, Copyright © 2015 Elsevier Ltd

Highlights

- Labor analgesia with PIEB + PCEA vs. CEI + PCEA were compared retrospectively after implementation.
- We contrast findings to previous randomized controlled trials comparing PIEB to CEI.
- PIEB + PCEA reduced rescue clinical boluses while providing comparable analgesia.

BIVERKNINGAR

- Klåda
- Motorblockad
- Urinretention
- Hypotension
- PDPH
- Total spinal
- Nervskada

EDA:N FUNKAR INTE...

- Anamnes! Ingen smärtlindring alls? Halvsidigt anslag? Var sitter smärtan?
- Kontrollera katetern.
- Utbredning?
- Om PCEA, antal bolusar? Ge bolus
- Om halvsidigt anslag. Backa kateter om möjligt. Ge bolus.
- Sakral smärta. Partus?
- Uterusruptur??
- Om inget funkar. Lägg om.

CSE – COMBINED SPINAL EPIDURAL

Fördelar:

- Snabbare anslag
- Bättre sakral täckning
- Lägre doser LA medel behövs
- Högre frekvens av korrekt placerad EDA-kateter

Nackdelar:

- Pruritus vanligare
- Otestad EDA-kateter
- Högre frekvens av hyperton uterus

DPE- DURAL PUNCTURE EPIDURAL

- Som CSE men utan intrathekalt lm
- Snabbare anslag än EDA
- Bättre sakral täckning än EDA
- Mindre pruritus än CSE

Fler studier behövs

FÖRLOSSNINGSSPINAL

Indikation:

- Omföderska, förväntad snabb förlossning
- Öppen > 7 cm

Läkemedel:

Marcaïn Spinal 5 mg/ml 0.25 ml = 1.25 mg

Sufenta 5 ug/ml 1.5 ml = 7.5 ug



PATIENTFALL

- EDA önskas. Frisk förstföderska, normal graviditet. Induktion. Oxytocindropp pågår. Öppen 6 cm.
- Patienten mkt smärtpåverkad. Täta värkar, kan inte ligga still.
- Beslut om att lägga förlossningsspinal för att i senare skede kunna lägga EDA.
- Erhåller spinal med snabb och god effekt
- Hyperton uterus och sjunkande FHR



PATIENTFALL

- FHR hämtar sig inte
- Läggs på sidan
- Oxydropp pausas
- Får bricanyl och FHR stiger

Orsak:

Snabb, god smärtlindring minskar mängden cirkulerande katekolaminer. Adrenalin tokolytiskt via beta-adrenerga receptorer.

PÅVERKAR EDA

- Frekvens av instrumentella förlossningar?
- Frekvens kejsarsnitt?

Use of epidural analgesia and its relation to caesarean and instrumental deliveries—a population-based study of 94,217 primiparae

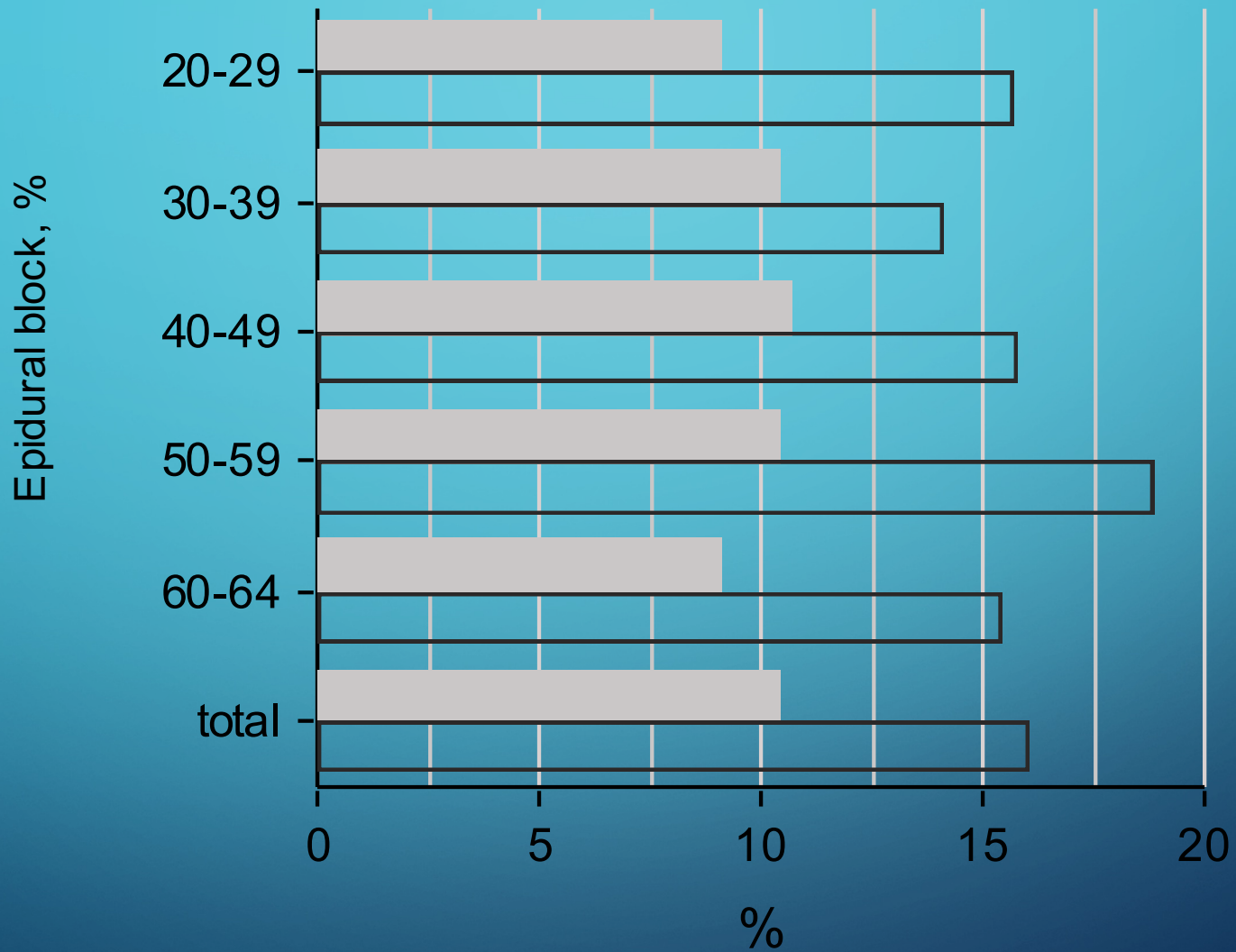
Susanne Ledin Eriksson ^{a,*}, Petra Otterblad Olausson ^b, Christina Olofsson ^c

^a*Department of Anaesthesia and Intensive Care, Gävle County Hospital, SE-80187 Gävle, Sweden*

^b*Centre for Epidemiology, National Board of Health and Welfare, Stockholm, Sweden*

^c*Department of Anaesthesia and Intensive Care, Karolinska Hospital, Stockholm, Sweden*

Received 2 February 2005; received in revised form 5 October 2005; accepted 29 October 2005



■ Caesarean section rate, %

■ Instrumental delivery, %



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Contents lists available at ScienceDirect

International Journal of Gynecology and Obstetrics

journal homepage: www.elsevier.com/locate/ijgo



CLINICAL ARTICLE

Impact of the introduction of neuraxial labor analgesia on mode of delivery at an urban maternity hospital in China

Ling-Qun Hu^{a,1}, Jin Zhang^{b,1}, Cynthia A. Wong^{a,*}, Qinying Cao^c, Guohua Zhang^d, Huijuan Rong^e, Xia Li^e, Robert J. McCarthy^a

^a Department of Anesthesiology, Northwestern University Feinberg School of Medicine, Chicago, IL, USA

^b Department of Anesthesiology, Shijiazhuang Obstetrics and Gynecology Hospital, Shijiazhuang, China

^c Department of Pediatrics, Shijiazhuang Obstetrics and Gynecology Hospital, Shijiazhuang, China

^d Department of Obstetrics and Gynecology, Shijiazhuang Obstetrics and Gynecology Hospital, Shijiazhuang, China

^e Department of Nursing, Labor and Delivery Unit, Shijiazhuang Obstetrics and Gynecology Hospital, Shijiazhuang, China

ARTICLE INFO

Article history:

Received 6 January 2014

Received in revised form 18 October 2014

Accepted 16 December 2014

Keywords:

Cesarean delivery

Epidural analgesia

Forceps

Impact study

Labor analgesia

Neuraxial analgesia

ABSTRACT

Objective: To evaluate the association between the introduction of neuraxial (epidural) labor analgesia and mode of delivery in a large urban maternity hospital in China. **Methods:** A single-intervention impact study was conducted at Shijiazhuang Obstetrics and Gynecology Hospital in Shijiazhuang. Baseline data collection occurred between August 1 and December 31, 2009, when no analgesic method was routinely employed during labor. An intervention was then implemented, consisting of a neuraxial labor analgesia service. The service was fully operational from September 1, 2010, and data were collected to August 31, 2011. The mode of delivery was compared between the different periods. **Results:** Neuraxial analgesia rate was used in none of the 3787 deliveries during the baseline period and 3429 (33.5%) of 10 230 in the implementation period. Cesareans were performed in 1533 (40.5%) deliveries in the baseline period and 3441 (33.6%) in the implementation period (difference -6.8%, 99.8% confidence interval [CI] -9.7% to -3.9%; $P < 0.0017$). The proportion of vaginal deliveries in which forceps were used was unchanged (difference -0.8%, 99.8% CI -0.7% to 2.2%; $P = 0.92$). **Conclusion:** The introduction of epidural analgesia reduced the frequency of cesarean delivery, which improved obstetric and neonatal outcomes.

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Contents lists available at ScienceDirect

International Journal of Gynecology and Obstetrics

journal homepage: www.elsevier.com/locate/ijgo



CLINICAL ARTICLE

Impact of the introduction of neuraxial labor analgesia on mode of delivery at an urban maternity hospital in China

Ling-Qun Hu^{a,1}, Jin Zhang^{b,1}, Cynthia A. Wong^{a,*}, Qinying Cao^c, Guohua Zhang^d, Huijuan Rong^e,
Xi...

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In conclusion, the introduction of epidural analgesia to a childbirth environment in which no analgesia was previously available was associated with a decrease in the overall cesarean delivery rate and a decrease in the rate of nonmedically indicated cesarean deliveries. Moreover, the introduction of epidural analgesia was associated with a decrease in the episiotomy rate, with no change in the rate of forceps-assisted vaginal delivery. The postpartum hemorrhage rate was unchanged and neonatal outcomes improved. Taken together, the introduction of epidural analgesia in the present setting improved labor and delivery outcomes compared with the use of nonpharmacological analgesia methods.

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nd
d.

FRÅGOR?



TIDIG EDA. TILL VILKA OCH VARFÖR?

Några riskfaktorer för allvarlig mödramorbiditet

- Ålder
- BMI
- Komorbiditet ex. DM, hjärtsjd, PE
- Tidigare kejsarsnitt
- Flerbörd

Practice Guidelines for Obstetric Anesthesia

An Updated Report by the American Society of Anesthesiologists
Task Force on Obstetric Anesthesia and the Society for Obstetric
Anesthesia and Perinatology*

Early Insertion of a Neuraxial Catheter for Complicated Parturients.

Literature Findings:

The literature is insufficient to assess whether, when caring for the complicated parturient, the early insertion of a neuraxial catheter, with immediate or later administration of analgesia, improves maternal or neonatal outcomes.

Survey Findings:

The consultants and ASA members strongly agree to consider early insertion of a neuraxial catheter for obstetric (*e.g.*, twin gestation or preeclampsia) or anesthetic indications (*e.g.*, anticipated difficult airway or obesity) to reduce the need for GA if an emergent procedure becomes necessary.