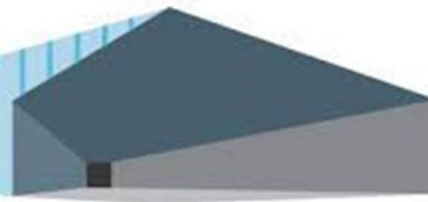




PAULA STRADIŅA
KLĪNISKĀ UNIVERSITĀTES
SLIMNĪCA

BaltAnestIC 2023

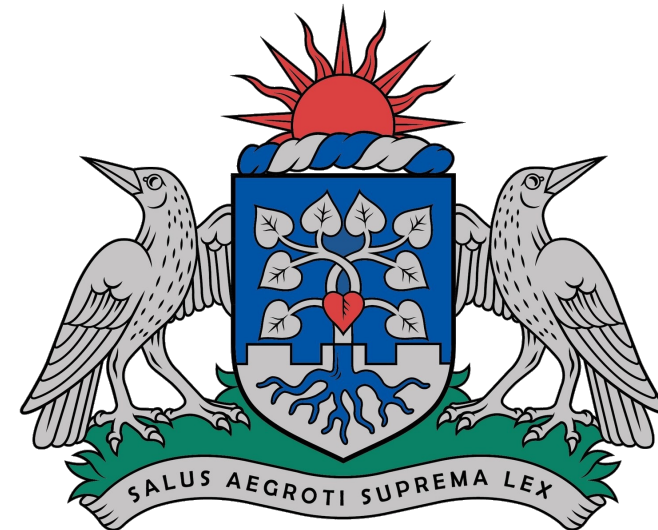


RĪGA STRADIŅŠ
UNIVERSITY

Does the rising popularity of epidural analgesia improve its quality?

Marina Šarkele

- P.Stradiņš CUH, Head of Dpt Anesthesiology
- Riga Stradiņš University, Assistant of Dpt Anesthesiology and Reanimatology; Dpt of Clinical skills and medical technology



20 years ago

Exploring Women's Preferences for Labor Epidural Analgesia

Mary Ann Stark, RNC, PhD


- Of the 56 women 44.6% (n = 25) used labor epidural analgesia;
- The cesarean rate was 19.6% (n = 11);
- Most of the women delivered at one tertiary hospital (94.6%, n = 53). At this hospital, epidurals were available to all laboring women regardless of payer.

Does the popularity rise?

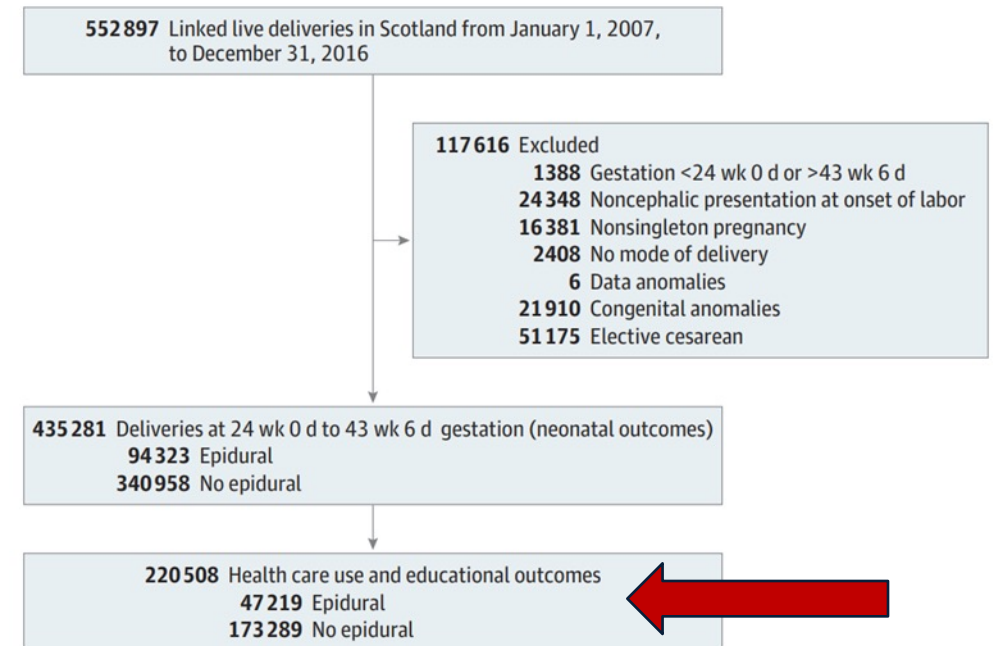
- 10- 64% EA in developed countries
- 30- 73% EA in Scotland
- 72- 95% EA in USA

A survey of labour epidural practices at obstetric anesthesia fellowship programs in the United States

Un sondage sur les pratiques de péridurales pour le travail dans les programmes de fellowship en anesthésie obstétricale aux États-Unis

Elliott Callahan, MD  · Peter Yeh, MD · Brendan Carvalho, MD · Ronald B. George, MD, FRCPC

Received: 1 October 2021 / Revised: 16 November 2021 / Accepted: 17 November 2021 / Published online: 28 January 2022
© The Author(s) 2022



Does the popularity rise?

- Decreasing birth rate



Table 1. Comparison of number of inhabitants and the birth rate

Country	Inhabitants in 2013 (millions)	Birth rate in 2013 per 100 000 inhabitants	Inhabitants in 2022 (millions)	Birth rate in 2022 per 100 000 inhabitants
Poland	38.0	10.0	37.8	9.0
Latvia	2.0	10.2	1.9	8.5
Serbia	7.1	n/a	7.2	9.1
RF	143.5	13.2	146.4	8.9

RF: Russian Federation

Table 5. Obstetric anaesthesia official data.²⁹³⁰

Country	Cesarean delivery rate	Free epidural analgesia nationwide availability	Percentage of nationwide labour analgesia (excluding CS)
Poland	47.0% (2022)	Yes (since 2015)	14.4% (2022)
Latvia	22.2% (2021)	Yes (since 2022)	22.7% (2022)
Serbia	28.8% (2014)	Yes (since 2015)	n/a
RF	20.8% (2017)	Yes (since 2010)	n/a

n/a: data not available



International Journal of Obstetric Anesthesia

Available online 15 September 2023, 103931

In Press, Journal Pre-proof [What's this?](#)



Where is obstetric anaesthesiology heading in the next decade? An Eastern European perspective

I. Golubovska^a, C. Palmer^b, A. Ronenson^c, E. Shifman^d, M. Sarkele^e, N. Pejcić^f,

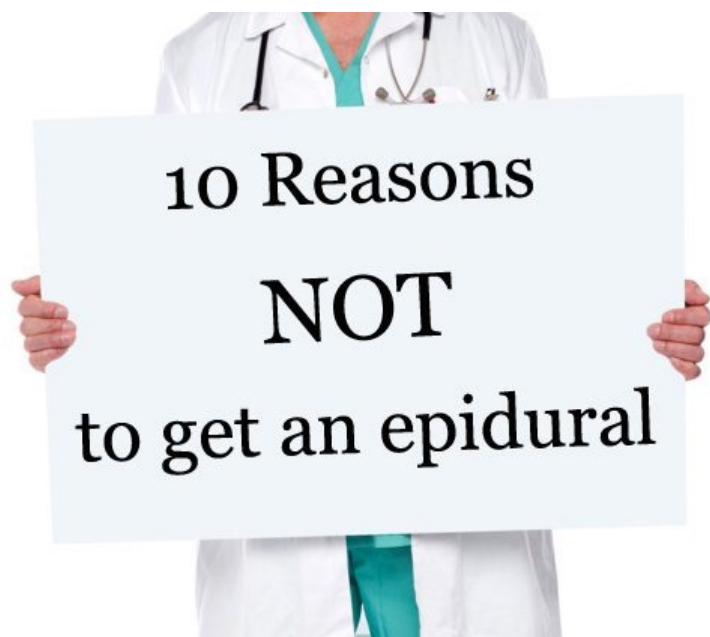
I. Velickovic^g, B. Pujic^h, P. Krawczykⁱ



- Increasing EA rate

Where is obstetric anaesthesiology heading in the next decade? An Eastern European perspective
 I. Golubovska, C. Palmer, A. Ronenson, E. Shifman, M. Sarkele, N. Pejcić, I. Velickovic, B. Pujic, P. Krawczyk
 International Journal of Obstetric Anesthesia, Elsevier, 15 September 2023

Not welcome bonus of EA



Received: 1 November 2021 | Revised: 20 February 2022 | Accepted: 23 February 2022 | First published online: 21 March 2022
DOI: 10.1002/ijgo.14175



REVIEW ARTICLE
Obstetrics

Epidural analgesia in labor: A narrative review

Lucy Halliday | Scott M. Nelson | Rachel J. Kearns

Risk	Frequency
Additional pain relief required on top of epidural	1 in 8
Epidural not functioning well enough for cesarean delivery—require a spinal or general anesthetic	1 in 20
Significant drop in blood pressure	1 in 50
Severe headache	1 in 100
Temporary nerve damage (e.g. patch of numbness on leg or weakness in leg)	1 in 1000
Permanent nerve damage	1 in 13000
Epidural abscess (infection)	1 in 50000
Meningitis	1 in 100000
Epidural hematoma (blood clot)	1 in 170000
Severe injury (including paralysis)	1 in 250000

Trending in 2023

Original Investigation | Anesthesiology

Association of Epidural Analgesia in Women in Labor With Neonatal and Childhood Outcomes in a Population Cohort

EA effect on newborn and delivery methods

Induction of delivery, comorbidities can clarify EA relation to CS and instrumental delivery techniques

Outcome	Events, No. (%)		
	Total	No epidural	Epidural
Obstetric and neonatal outcomes			
No.	435 281	340 958	94 323
Mode of delivery			
SVD	303 013 (69.6)	268 629 (78.8)	34 384 (36.5)
Breech	28 ^a (0.006)	28 (0.008)	<5 (0.004)
Emergency cesarean delivery	70 899 (16.3)	41 631 (12.2)	29 268 (31.0)
Instrumental	52 799 (12.1)	26 668 (7.8)	26 131 (27.7)
Rotational	8540 (2.0)	4002 (1.2)	4538 (4.8)
Neonatal resuscitation	33 351 (7.7)	25 429 (7.5)	7922 (8.4)
Apgar score, points			
<7 at 5 min	6250 (1.4)	5008 (1.5)	1242 (1.3)
<4 at 5 min	1561 (0.4)	1237 (0.4)	324 (0.3)
Admitted to neonatal unit	30 211 (6.9)	23 645 (6.9)	6566 (7.0)
Health care use and educational outcomes			
No.	220 508	173 289	47 219
Time in hospital up to age 2 y, median (IQR), d ^b	NA	0 (0-0)	0 (0-0)
No. of unique conditions diagnosed up to age 2 y, median (IQR)	NA	0 (0-1)	0 (0-1)
No. of operations performed up to age 2 y, median (IQR)	NA	0 (0-0)	0 (0-0)
Concern at age 2 y			
Gross motor	4494 (2.0)	3657 (2.1)	837 (1.8)
Fine motor	5414 (2.5)	4446 (2.6)	968 (2.1)
Communication	29 118 (13.2)	23 336 (13.5)	5782 (12.2)
Social	9599 (4.4)	7681 (4.4)	1918 (4.1)
Any concern noted in ≥1 developmental domain	33 638 (15.3)	26 948 (15.6)	6690 (14.2)

Is there a strong evidence???

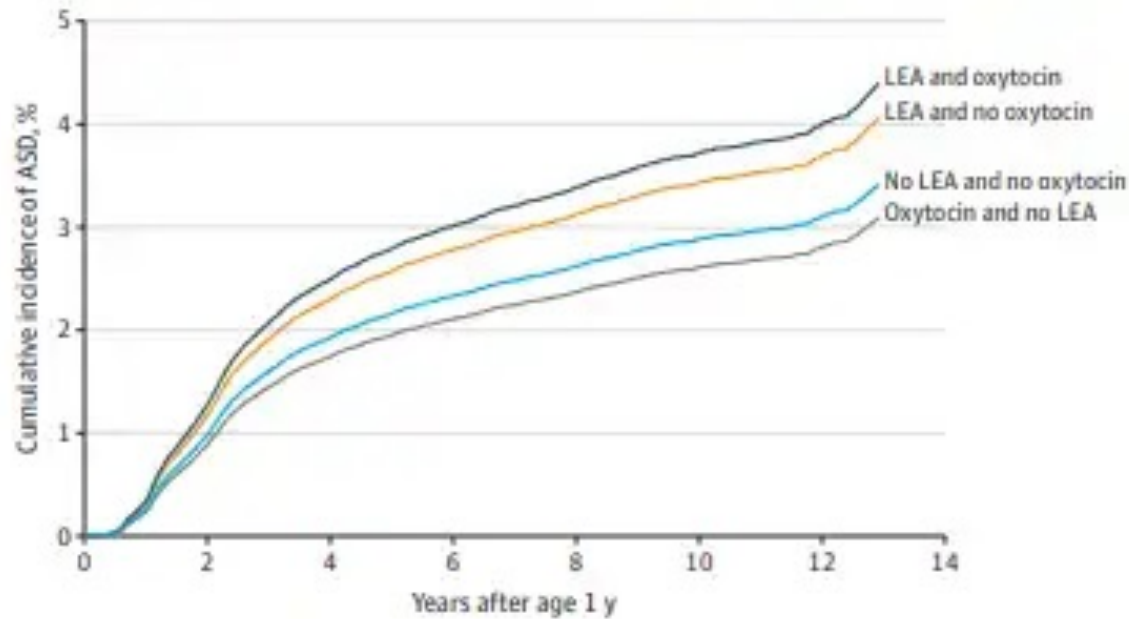
Epidural and autism

Original Investigation | Obstetrics and Gynecology

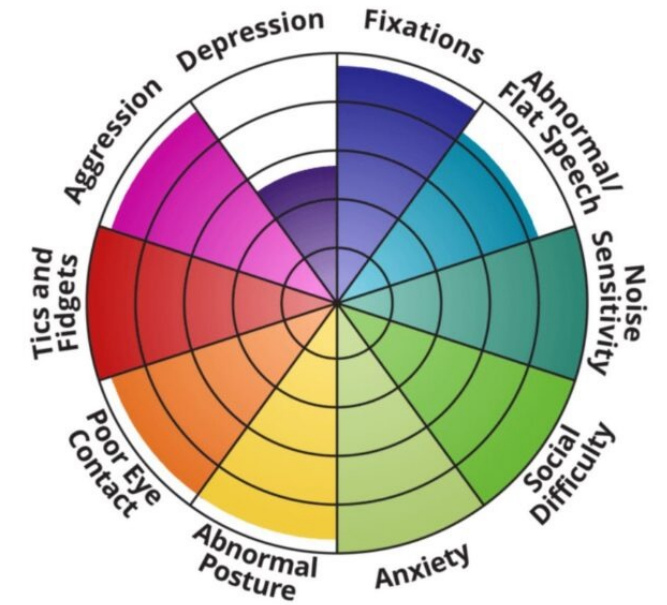
Association of Labor Epidural Analgesia, Oxytocin Exposure, and Risk of Autism Spectrum Disorders in Children

Chunyuan Qiu, MD; Sarah A. Carter, PhD; Jane C. Lin, MS; Jiaxiao M. Shi, PhD; Ting Chow, MPH; Vimal N. Desai, MD; Vu T. Nguyen, MD; Joseph Spitzer, MD; R. Klara Feldman, MD; Anny H. Xiang, PhD

Figure. Adjusted Cumulative Incidence of Autism Spectrum Disorder (ASD) by Labor Epidural Analgesia (LEA) and Oxytocin Exposure



No. at risk	0	2	4	6	8	10	12	14
LEA and oxytocin	104 201	94 445	76 952	53 964	34 490	17 386	4 021	
LEA and no oxytocin	49 679	44 903	36 294	24 894	15 520	8 477	2 757	
No LEA and no oxytocin	38 507	35 217	29 049	20 917	14 596	9 887	4 636	
Oxytocin and no LEA	13 607	12 492	10 565	7 908	5 742	3 475	1 086	



Nalbuphine vs Fentanyl

Liu et al. *BMC Anesthesiology* (2023) 23:248
<https://doi.org/10.1186/s12871-023-02209-7>

BMC Anesthesiology

RESEARCH

Open Access

Effect of nalbuphine plus ropivacaine on vaginal labor in epidural analgesia



Guo-hua Liu^{1†}, Li-wen Liu^{2†}, Lian-chun Ou¹, Xiao-sheng Cao¹, Zhao Pang¹, Xue-jin Wen¹, Quan-yan He¹ and Biao Yin^{3*}

- NR group (n=78) was administered with an 8 mL mixture of 0.2 mg/mL nalbuphine and 0.1% ropivacaine in a maternal epidural cavity;
- FR group (n=82) was administered with an 8 mL mixture of 2ug/mL fentanyl and 0.1% ropivacaine.

Nalbuphine vs Fentanyl

- Shorter delivery time/ Faster analgesia/ Less urinary retention

Group	Number	First stage of labor	Second stage of labor	Third stage of labor	Total stage of labor
NR Group	78	492.6 ± 51.1	66.2 ± 11.7	7.1 ± 1.2	565.9 ± 64.0
FR Group	82	587.3 ± 49.8	64.4 ± 13.5	7.3 ± 1.4	658.7 ± 64.7
<i>t</i>		11.871	0.899	0.968	9.116
<i>p</i>		< 0.001	0.370	0.335	< 0.001

Indicator	Group	Number of cases	T0	T1	T2	T3	T4	T5
VAS	NR	78	8.0 ± 1.1	2.8 ± 1.7	2.2 ± 1.9	3.8 ± 2.5	5.6 ± 2.7	0.5 ± 1.1
	FR	82	8.0 ± 1.2	3.1 ± 1.5	2.3 ± 1.6	4.7 ± 2.8	5.6 ± 2.8	0.6 ± 1.6
<i>t</i>			0	1.185	0.361	2.141	0	0.871
<i>p</i>			1	0.238	0.719	0.034	1	0.385

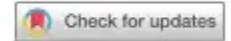
Group	Number of cases	Nausea	Vomiting	Dizziness	Itching	Urinary retention
NR	78	9(12)	5(6)	12(15)	0(0)	5(6)
FR	82	7(9)	4(5)	10(12)	2(2)	17(21)
χ^2		0.400	0.177	0.343	1.927	6.914
<i>p</i>		0.527	0.674	0.558	0.165	0.009

Duration of labor with LEA

Expert Review

ajog.org

Modern labor epidural analgesia: implications for labor outcomes and maternal-fetal health



Elliott C. Callahan, MD; Won Lee, MD; Pedram Aleshi, MD; Ronald B. George, MD, FRCPC

- meta-analysis of studies comparing epidural with parenteral opioids and reported 42 minutes longer first-stage duration in the epidural group. 1
- some authors have reported shorter first-stage durations if LEA is initiated before 4cm cervical dilation. 2
- pain relief leads to imbalance in circulating catecholamines, reducing β agonism, and increasing uterine activity. 3
- effect of early epidural on shortening labor was not supported in a 2014 Cochrane review. 4

1. Halpern SH, Leighton BL, Ohlsson A, Barrett JFR, Rice A. Effect of epidural vs parenteral opioid analgesia on the progress of labor: a meta-analysis. JAMA 1998;280: 2105–10

2. Wong CA, Scavone BM, Peaceman AM, et al. The risk of cesarean delivery with neuraxial analgesia given early versus late in labor. N Engl J Med 2005;352:655–65..

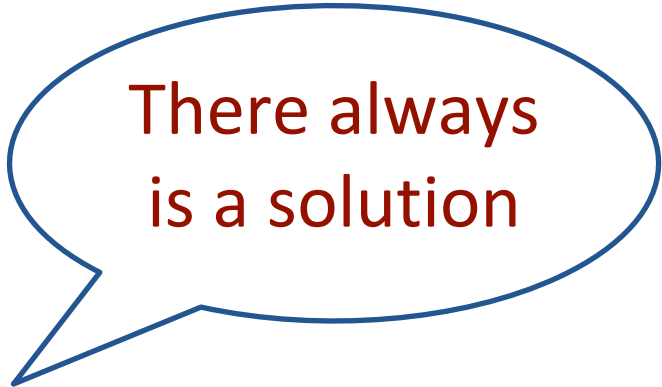
3. B.L. Sng, W.L. Leong, Y. Zeng, et al. Early versus late initiation of epidural analgesia for labour Cochrane Database Syst Rev, 2014 (2014), p. CD007238

4. Callahan EC, Lee W, Aleshi P, George RB. Modern labor epidural analgesia: implications for labor outcomes and maternal-fetal health. Am J Obstet Gynecol. 2023 May;228(5S):S1260-S1269. doi: 10.1016/j.ajog.2022.06.017. Epub 2023 Mar 20. PMID: 37164496.

Duration of labor with LEA and opioids

- 750 patients at <4cm cervical dilation were randomized to systemic opioids vs intrathecal [fentanyl](#) for their **first analgesic** request.
- On their **second** request for analgesia, the intrathecal F group received LEA, whereas the SO group received LEA only when cervical dilation exceeded 4 cm, or at third request.
- The group with intrathecal F had a significantly shorter time to complete cervical dilation (295 vs 385 minutes; $P<.001$) and shorter time to vaginal delivery (398 vs 479 minutes; $P<.001$) than the systemic opioid group.
- Pain scores and incidence of 1-minute [Apgar scores](#) <7 were also lower in the intrathecal F group

Hypotension



There always
is a solution

- multicenter randomized controlled
- 709 patients who received intravenous [remifentanil](#) patient-controlled analgesia (PCA) with 705 patients who received LEA
- remifentanil PCA group was less likely to experience hypotension than the LEA group (RR, 0.75; 95% CI, 0.57–1.00; $P=.03$).

PDPH GUIDELINES

- Incidence 1% in EA
- Incidence 1- 40% in SA
- Higher risk in obstetric population

- BUT

- Strong guidelines and safety protocols

Quality vs popularity

- Goal in equality
- Informed consent
- Patient involvement in decision making
- Healthcare provider as patient educator
- Trainings for healthcare providers
- Advancement of techniques
- Safer options



PAULA STRADIŅA
KLĪNISKĀ UNIVERSITĀTES
SLIMNĪCA

To be continued ...

