JAN BLÁHA

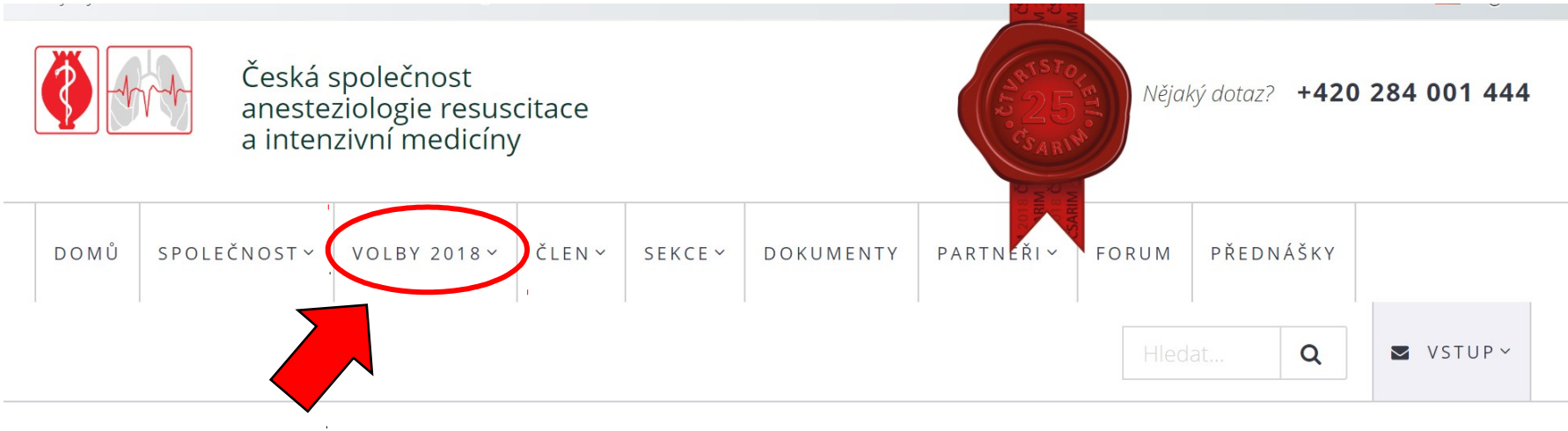
Klinika anesteziologie, resuscitace a intenzivní medicíny
1. lékařská fakulta Univerzity Karlovy
Všeobecná fakultní nemocnice v Praze

DOGMATA NA PORODNÍM SÁLE

jan.blaha@vfn.cz

MOŽNÝ STŘET ZÁJMŮ: ŽÁDNÝ

…od akutně.cz jsem dostal láhev vína. Díky ☰



Kandidáti do organizačních složek společnosti

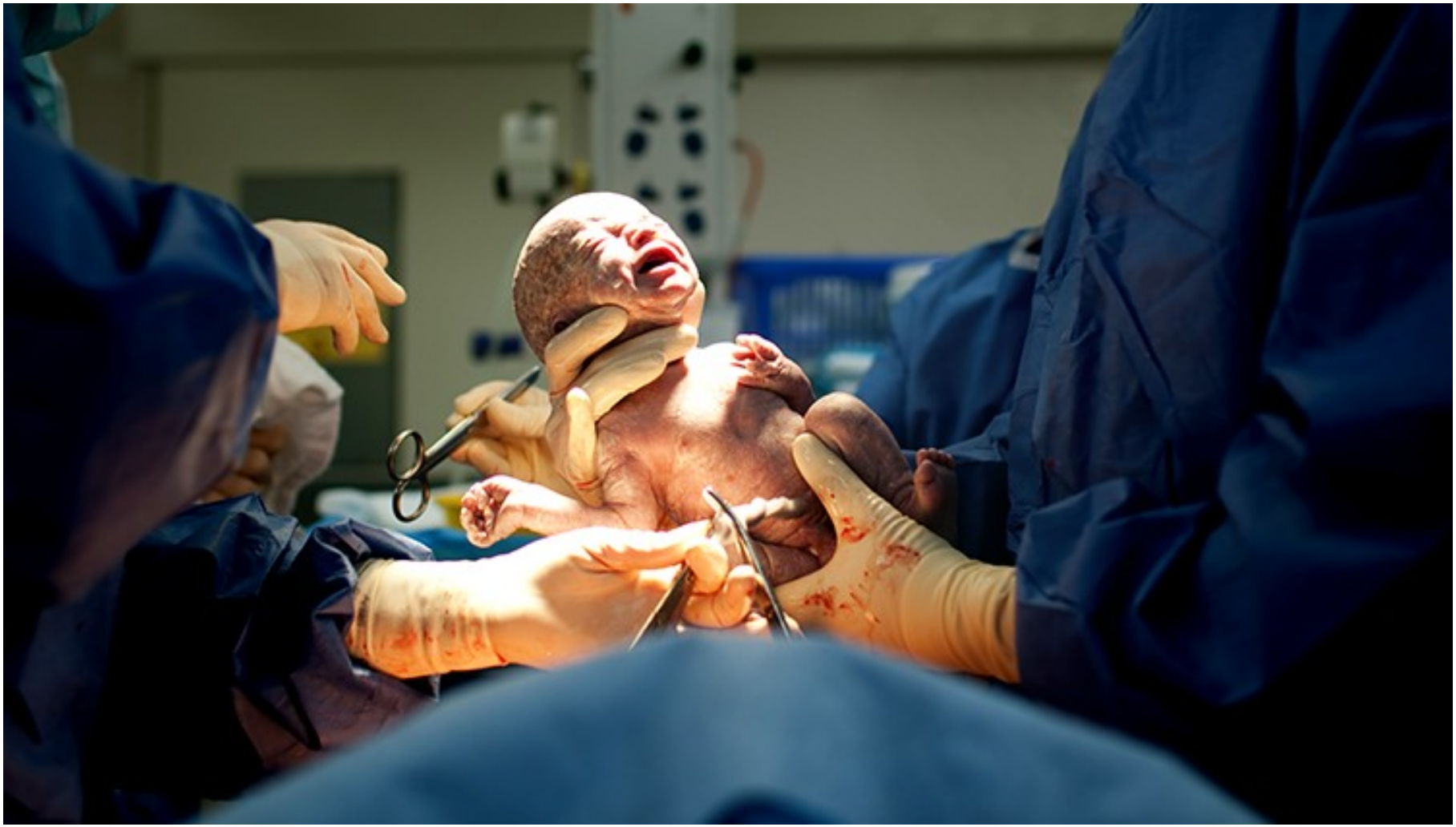
Zde můžete nalézt životopisy všech kandidátů do organizačních složek ČSARIM, tj. výbor a revizní komise.

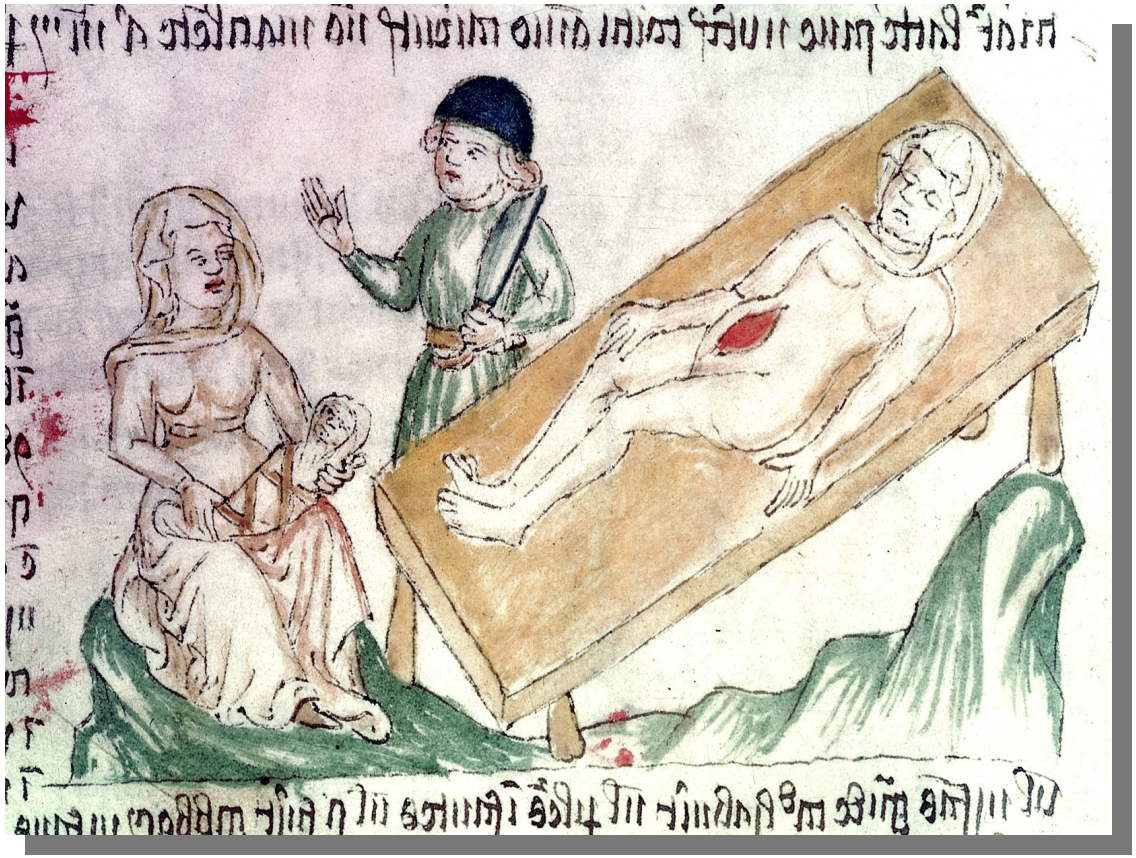
Nominovaní kandidáti také dostali možnost odpovědět na tři otázky, které by vám měli pomoci při rozhodování koho zvolit jako zástupce anesteziologické společnosti. Publikace fotografie a volebního textu (odpovědi na 3 uvedené otázky) byla dobrovolná.

Fotografie

Jméno
Funkce
životopis

1. **Čím byste rád/a přispěl/a k rozvoji oboru?**
2. **Jaké jsou Vaše preferované okruhy zájmu?**
3. **Čemu by se podle Vás společnost ČSARIM měla věnovat v následujícím čtyřletém období?**





Praha, místo kde byl proveden první císařský řez, kdy přežila současně matka i dítě?

Prague 1337: the first successful caesarean section in which both mother and child survived may have occurred in the court of John of Luxembourg, King of Bohemia

Pařízek A.[1], Drška V.[2], Říhová M.[3]

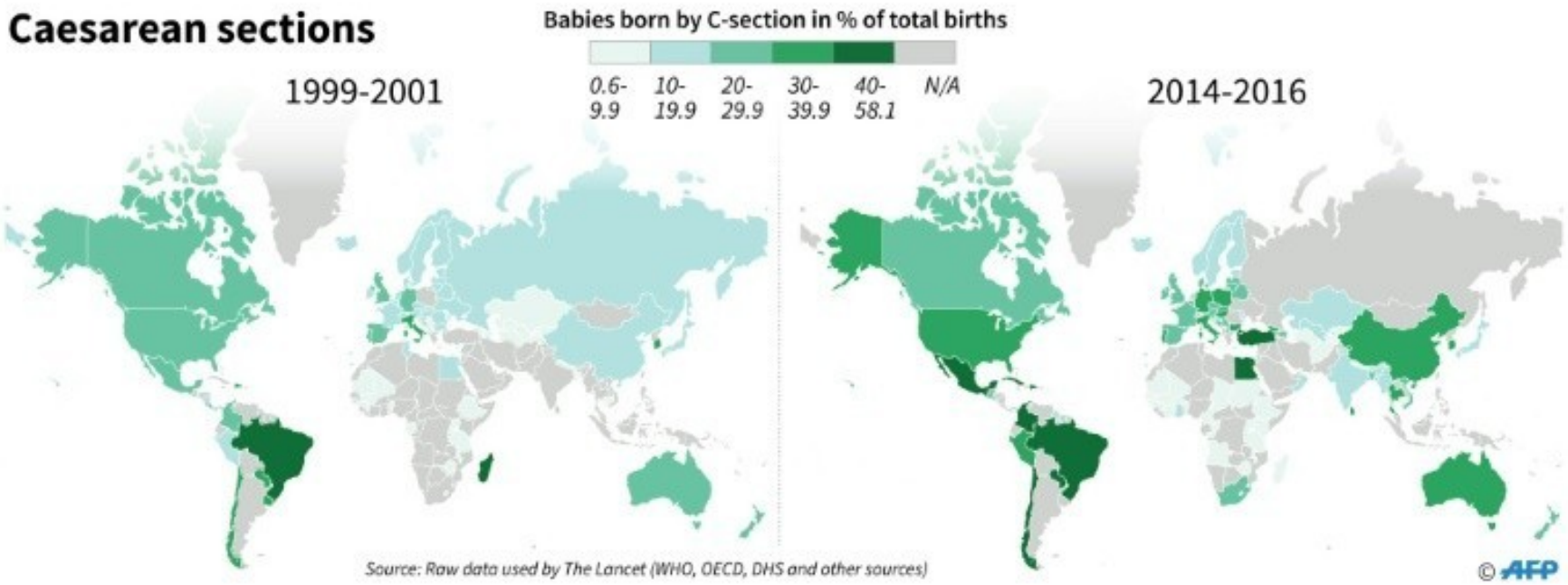
[1]Gynekologicko-porodnická klinika 1. LF UK a VFN, přednosta prof. MUDr. A. Martan, DrSc.
[2]Ústav světových dějin, Filozofická fakulta UK, Praha, ředitel prof. PhDr. M. Kovář, Ph.D.
[3]Ústav dějin lékařství a cizích jazyků, 1. LF UK, Praha, přednosta ústavu doc. Mgr. K. Černý, Ph.D.

ABSTRACT

Objective: An interdisciplinary historical-medical study, analysis of historical sources, and critical interpretation of the indirect evidence surrounding the childbirth of Beatrice of Bourbon, the second wife of the Bohemian King John of Luxembourg.
Study type: A material-based study founded on a comparative analysis of available private and public sources, particularly surviving letters, and narrative sources. The conclusions are reached based on a textual interpretation according to historical methods.
Settings: Department of Obstetrics and Gynecology of the First Faculty of Medicine of Charles University and General University Hospital in Prague.
Methods and results: Until the second half of the 19th century, medical knowledge of antiseptics and anesthesia was lacking, and techniques for cleaning wounds and staunching bleeding were primitive.
Because no effective anesthetics were known before that time, people did not know how to perform painless abdominal surgery. There are a very few credible reports of caesarean sections performed on living women as early as the 17th century. However, before the 19th century, a caesarean section meant almost certain death for the mother, with related mortality as high as 90%. If the woman did not die of stress from the pain of the abdominal surgery, then she usually died of either bleeding or later of sepsis. However, there is some indirect evidence that the first caesarean section that was survived by both the mother and child was performed in Prague in 1337. The mother was Beatrice of Bourbon (1318–1383), the second wife of the King of Bohemia John of Luxembourg (1296–1346). Beatrice gave birth to the king's son Wenceslaus I (1337–1383), later the duke of Luxembourg, Brabant, and Limburg, and who became the half brother of the later King of Bohemia and Holy Roman Emperor, Charles IV (1316–1378).
Conclusions: From a historical analysis based on the indirect evidence, it is not possible to unequivocally determine whether a caesarean section that was survived by both the mother and child was actually performed in the 14th century. From a medical standpoint in the context of all the known surrounding circumstances, however, this rare event could indeed have taken place.

KEYWORDS

Prague, caesarean section, first, survived, mother, child, John of Luxembourg, Beatrice of Bourbon, 1337, anesthesia, mortality, morbidity


Caesarean sections
Babies born by C-section in % of total births
0.6-9.9
10-19.9
20-29.9
30-39.9
40-58.1
N/A
1999-2001
2014-2016
Source: Raw data used by The Lancet (WHO, OECD, DHS and other sources)
© AFP

PORODNICKÁ N TRIAS

1. Riziko obtížné intubace
2. Každá těhotná má plný žaludek
3. Hlavní příčinou mateřské mortality je plicní embolie

FYZIOLOGICKÉ ZMĚNY V TĚHOTENSTVÍ



10x vyšší riziko obtížné intubace u těhotných !!!

Lyons. Anaesthesia **1985**; 40:759-62 **1:300**

Barnardo. Anaesthesia **2000**; 55:685-94 **1:249**

Rahman. Anaesthesia **2005**; 60:168-71 **1:238**

McDonnell. Int J Obst Anest **2009**; 17:292-7 **1:274**

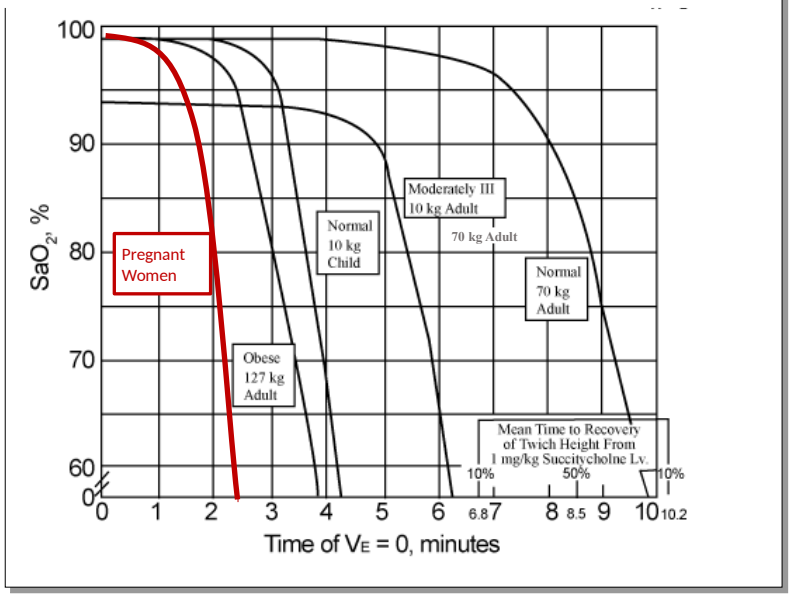

FYZIOLOGICKÉ ZMĚNY V TĚHOTENSTVÍ

in different patients

	FRC (mL)	O_2 consumption ($mL \cdot min^{-1}$)
No preoxygenation	2500	250
Normal preoxygenation	2500	250
Poor preoxygenation	2500	250
Obese	1250	350
Obese head-up	1500	350
Pregnant	1000	400
Elderly	2250	200

Examples only. Actual values may vary. FRC = functional residual capacity

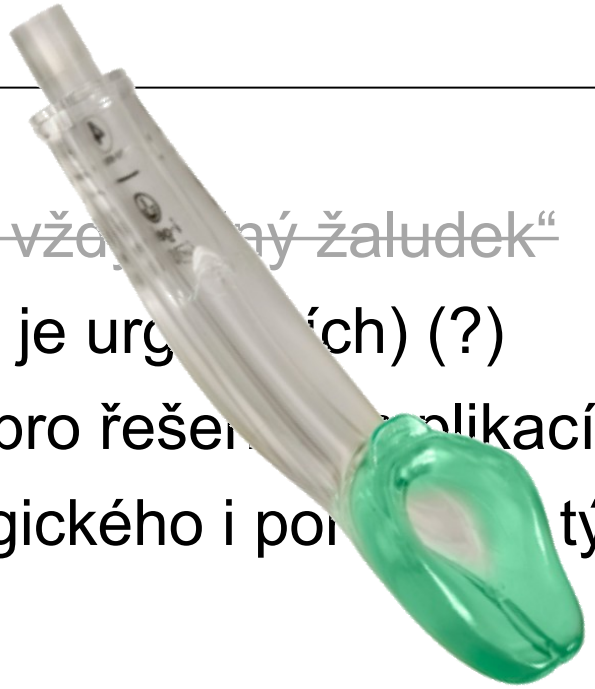
Tanoubi I. Can J Anesth/J Can Anesth (2009) 56:449–466



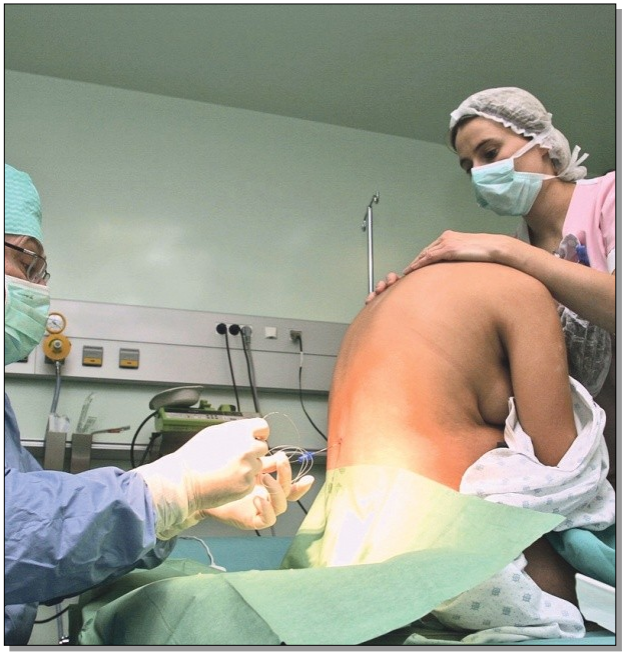
Benumof JL et al. Anesthesiology 1997; 87:979-82

Díky zvýšenému metabolismu nastává u rodičky (i plodu !) desaturace krve
a rozvoj kritické hypoxie nesrovnatelně rychleji než u netěhotných pacientek.

CÍSAŘSKÝ ŘEZ = VŽDY RIZIKO KOMPLIKACE!



- ~~těhotná po 16. týdnu má vždy plný žaludek“~~
- akutní stav (85% výkonů je urgentních) (?)
- nestandardní podmínky pro řešení komplikací
- stresová situace anesteziologického i porodnického týmu
- **chybí záložní plán !**



PORODNICKÁ N TRIAS

1. Riziko obtížné intubace
2. Každá těhotná má plný žaludek
3. Hlavní příčinou mateřské mortality je plicní embolie

THE ASPIRATION OF STOMACH CONTENTS INTO THE LUNGS DURING OBSTETRIC ANESTHESIA*

CURTIS L. MENDELSON, M.D., NEW YORK, N. Y.

(From the Department of Obstetrics and Gynecology, Cornell University Medical College and New York Hospital)

Am J Obstet Gynecol 1945;49:554–66.

Summary

Sixty-six cases of aspiration of stomach contents into the lungs during obstetric anesthesia are analyzed. The incidence of this complication is 0.15 per cent in 44,016 pregnancies at the [illegible]k Lying-In Hospital from 1932 to 1945.

Table 7 Reported incidence of aspiration in obstetri[illegible] general surgical populations

Study	No. of cases	Patient group cha[illegible]ristics	Incidence of aspiration [no. of cases]
This study	1870	Obstetric; peripartum; nonintubated	0.053% [1]
Kranz & Edwards [3]	37 282	Obstetric; vaginal delivery; nonintubated	0.013% [5]
Kranz & Edwards [3]	3076	Obstetric; Caesarean section; intubated	0.228% [7]
Olsson *et al*. [2]	2643	Obstetric; Caesarean section; intubated	0.15% [4]
Olsson *et al*. [2]	111 215	General surgery; nonintubated	0.018% [20]
Olsson *et al*. [2]	74 143	General surgery; intubated	0.085% [63]
Cohen *et al*. [5]	112 000	General surgery; intubated and nonintubated	0.064% [72]
Kallar [6]	529 150	Outpatients; intubated and nonintubated	0.017% [90]
Warner *et al*. [4]	13 427	General surgery; emergency	0.112% [15]
Warner *et al*. [4]	202 061	General surgery; elective	0.0257% [52]

Ezri et al. Anaesthesia 2000; 55:421-426

Oral sodium citrate increases nausea amongst elective Cesarean delivery patients

[Le citrate de sodium oral augmente les nausées pendant la césarienne réglée]

Klaus Kjaer MD, Michele Comerford MD, Linda Kondilis BA, Lauren DiMaria BA, Sharon Abramovitz MD, Michael Kiselev MD, Jon Samuels MD, Farida Gadalla MD, Barbara L. Leighton MD

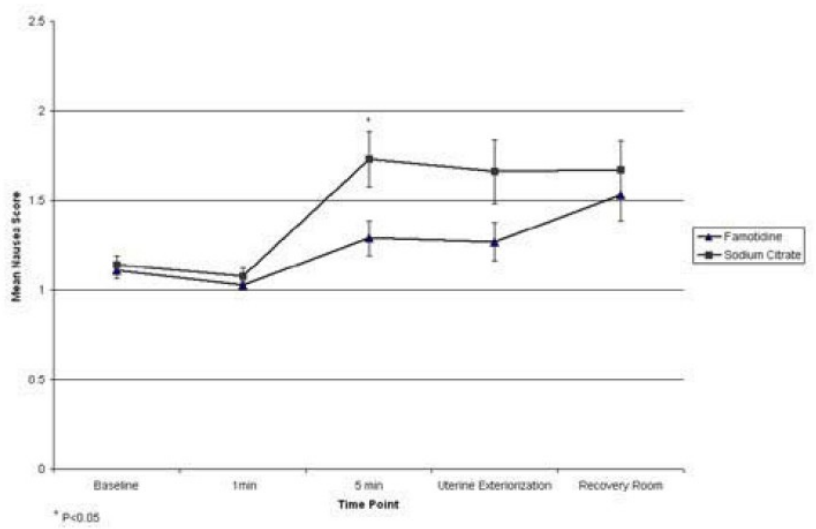


FIGURE 1 Average degree of nausea over time.

TABLE II Occurrence of nausea and hypotension

	Sodium citrate	*Control*	*P-value*
1 min after spinal			
Nausea	4/60 (7%)	2/63 (3%)	0.43
Hypotension	4/59 (7%)	4/61 (7%)	1
5 min after spinal			
Nausea	22/60 (37%)	9/63 (14%)	0.006
Hypotension	13/60 (22%)	11/63 (17%)	0.65
Uterine exteriorization			
Nausea	14/53 (26%)	7/52 (13%)	0.14
Hypotension	1/53 (2%)	2/53 (4%)	1
Recovery room			
Nausea	17/58 (29%)	15/62 (24%)	0.54
Hypotension	5/60 (8%)	9/63 (14%)	0.39

Nausea = 2–5 on a scale of 1–5, with 1 being no nausea and 5 being vomiting. Hypotension = systolic blood pressure ≤ 100. Compared with Pearson Chi-square test.

Kjaer K et al. Can J Anaesth. 2006 Aug;53(8):776-80.

RIZIKO ASPIRACE

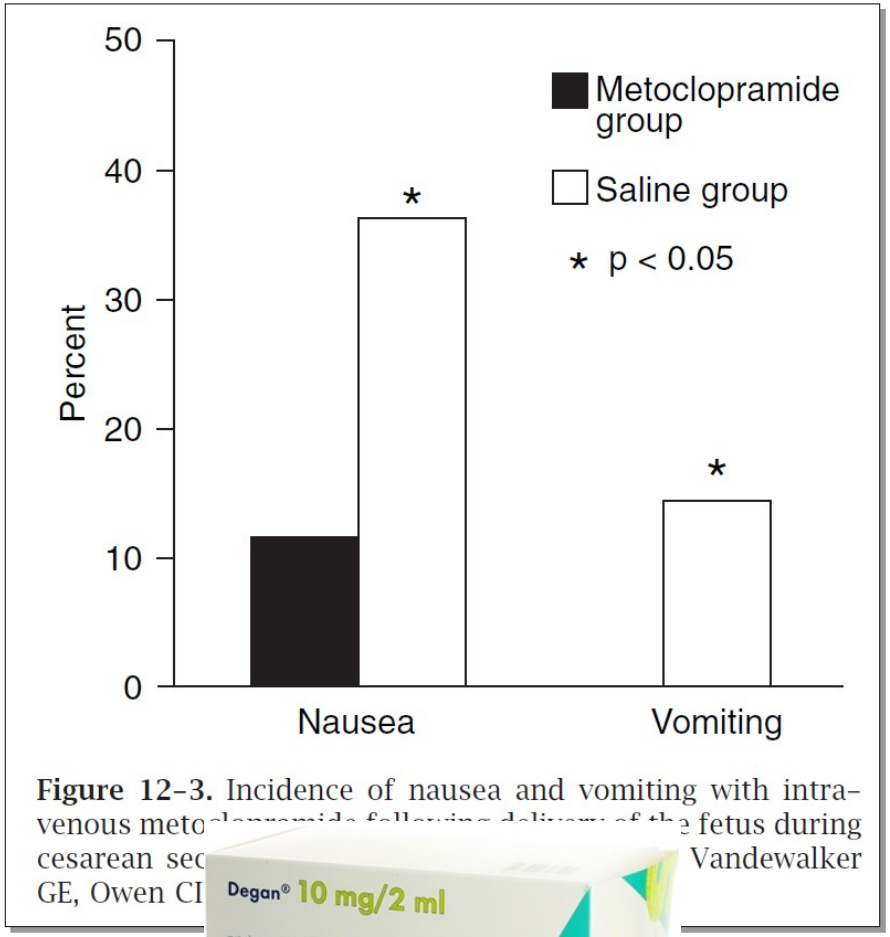
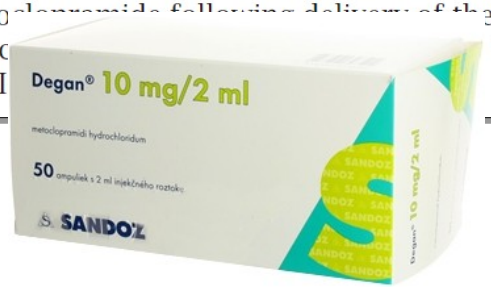


Figure 12–3. Incidence of nausea and vomiting with intravenous meto[illegible] fetus during cesarean sec[illegible] Vandewalker GE, Owen CI



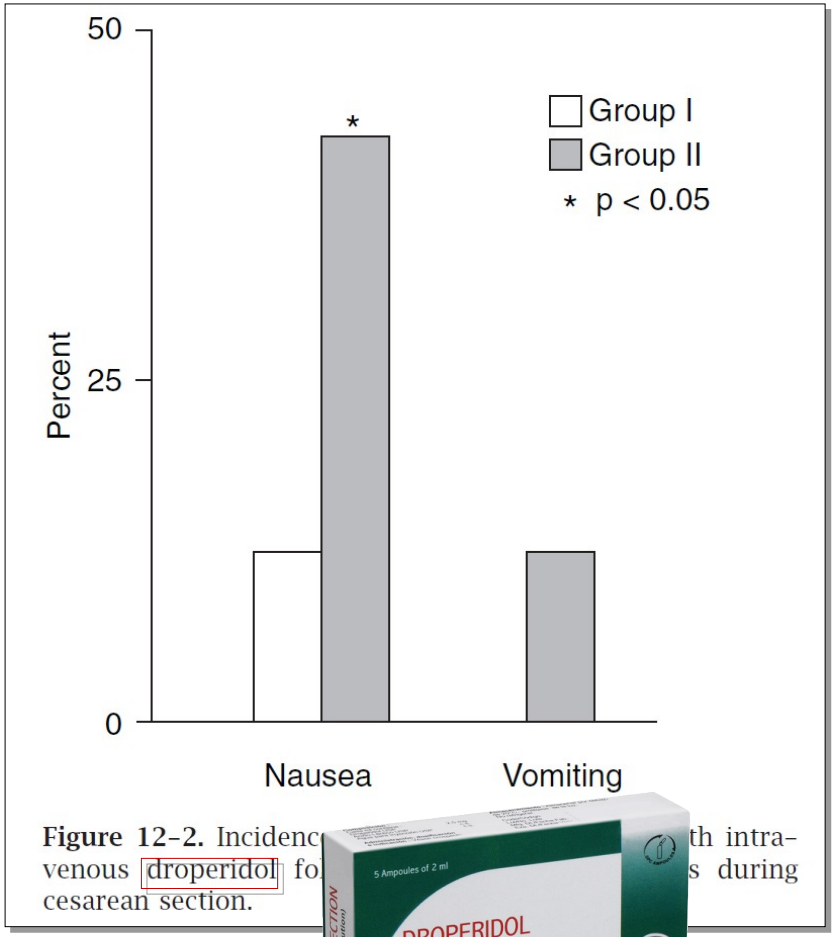
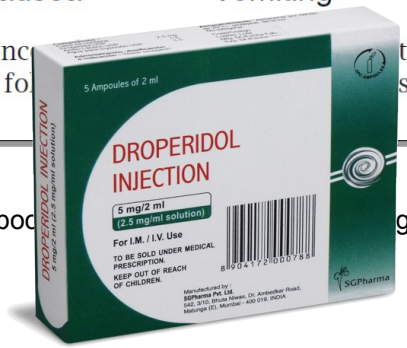


Figure 12–2. Incidenc[illegible] th intravenous droperidol fo[illegible]s during cesarean section.

Sanjay Datta, ed. Obstetric Anesthesia Handboo[illegible]ger, 2006



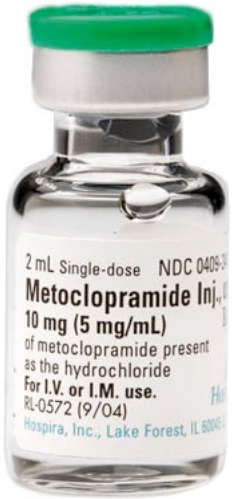


Table 1. Lower Esophageal Sphincter, Intragastric, and Barrier Pressures Obtained before and after Administration of 0.15 mg/kg Intravenous Metoclopramide

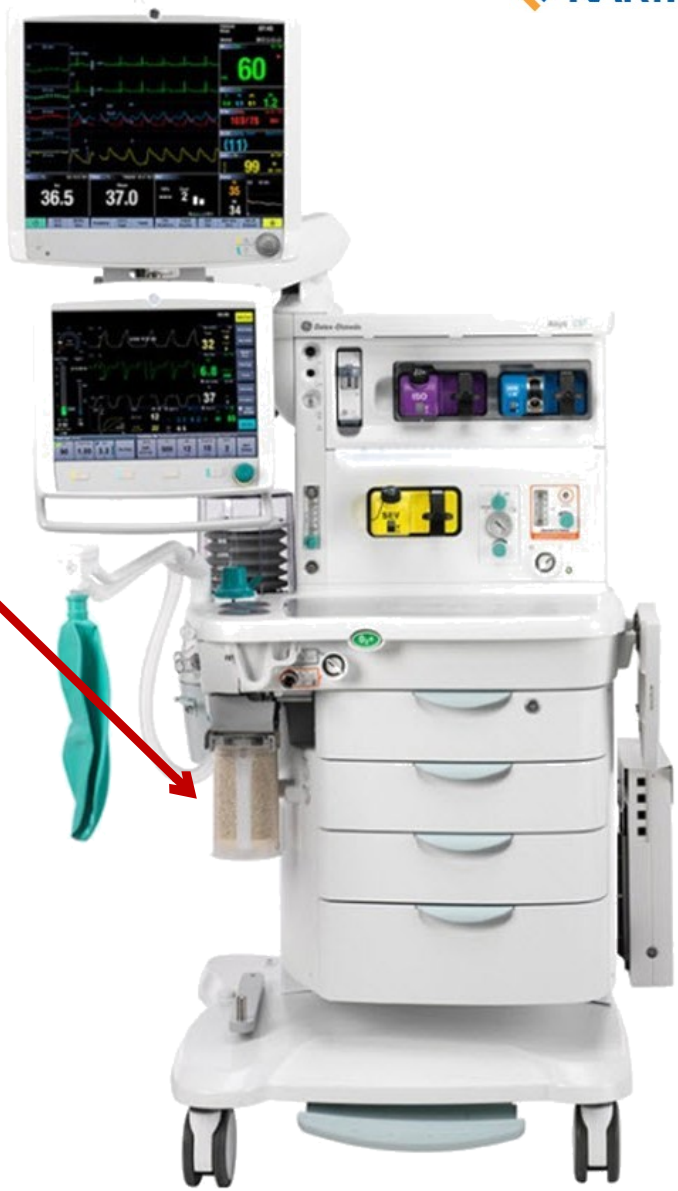
	Before Metoclopramide	After Metoclopramide	
	Baseline	Baseline	Cricoid Pressure Applied
Lower esophageal pressure	14.1 ± 2.9	19.6 ± 4.7†	5.0 ± 4.3*
Intragastric pressure	4.6 ± 1.4	5.7 ± 1.9	5.8 ± 2.3
Barrier pressure	9.6 ± 3.4	14.1 ± 5.5†	−0.2 ± 5.1*

Data are in mmHg ± SD.

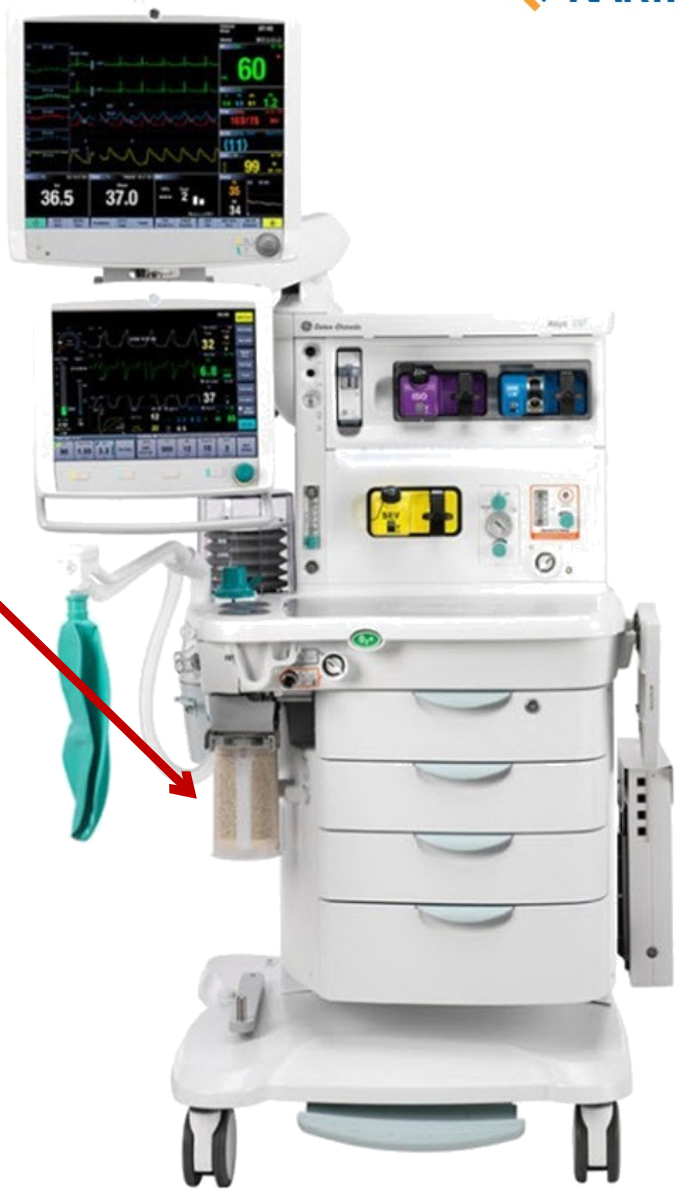
* $P < 0.05$ *vs.* respective baseline value. † $P < 0.05$ *vs.* respective pre-metoclopramide value.

Salem et al. Anesthesiology 2008; 109:806–10

ZKONTROLOVAT ODSÁVAČKU !



ZKONTROLOVAT ODSÁVAČKU !



International Journal of Obstetric Anesthesia (2014) 23, 157–160
0959-289X/$ - see front matter
http://dx.doi.org/10.1016/j.ijoa.2013.11.006

www.obstetanesthesia.com

ORIGINAL ARTICLE

Enhanced recovery from obstetric surgery: a UK survey of practice

S. Aluri, I.J. Wrench
Department of Anaesthetics, Royal Hallamshire Hospital, Sheffield, UK

- **p.o. příjem tekutin** před výkonem – povoleno do 2 hod (78% pracovišť)

  po výkonu – zahájen v průběhu 1 hod (70%)

- **jídlo po výkonu** - v průběhu 6 hod (71%)

KARIM

Všeobecná fakultní nemocnice v Praze
U Nemocnice 499/2, 128 08 Praha 2; IČ 00064165, tel.: 224 961 111

POOPERAČNÍ ORDINACE

F-VFN-139_GPK3
Strana 1 z 1
Verze číslo: 2

Jméno pacienta

Datum:

Pije ❑ihned ❑za 1/2 hod ❑..... hod; ❑lehká strava za 4 hod

1. ANALGEZIE ZÁKLADNÍ po příjezdu z operačního sálu:

❑ **Almiral** inj. 75 mg/100 ml F1/1 kape 20 min. i.v., dále á 12 hod.
Kontraindikace diklofenaku = alergie, těžké astma, velká krevní ztráta

ošetřujícího lékaře

❑ Kontrola hybnosti a citlivosti končetin po regionální blokádě
❑ Hodinová diuréza ❑ P + V á ..... hod.
❑ .....

OXYGENOTERAPIE:

❑ O_2 maskou 5 l/min. ..... min., dále jen při SpO_2 <92%

MEDIKACE:

❑ **Fraxiparine**/❑ ..... inj ..... ml s.c. v ..... hod

Při nauzee/zvracení:

❑ **Ondansetron** inj. ❑ 4 mg ❑ 8 mg pomalu i.v., lze á 8 hod.,
❑ **$MgSO_4$** 20% inj. perfusorem 12 / ..... hod. rychlostí 5 ml/hod
❑ .....
❑ .....
❑ .....
❑ **Oxytocin** inj. 2 j./F 1/1 100ml kape 2 hod., opakovat dle porodníka

KONTROLNÍ LABORATOŘ: v (čas):

❑ KO ❑ ionty (+ Ca^{2+}) ❑INR, APTT ❑ VHV
❑ CB, albumin ❑ ..... ❑ .....

INFUSE i.v.: od příjezdu z operačního sálu
Linka A: v uvedeném pořadí kape rychlostí ..... ml/hod.:

❑ Z operačního sálu: .....
❑ R 1/1 1000 ml + KCl 7,45% inj ..... ml + $CaCl_2$ inj ..... ml
❑ .....

Linka B: kape rychlostí ..... ml/hod.:

❑ .....

NA NOC: (jednorázově při neklidu či nespavosti pacientky)

❑ **Dormicum** ..... mg ..... tbl p.o.
❑ .....

OSTATNÍ:

❑ .....

❑ Při pokračující bolesti **Paracetamol Kabi** 1 g lag. (100 ml) i.v. kape 15 min.; opakovat lze nejdříve za 4 hod., max. 4 g/24 hod.
❑ Při trvající bolesti **Dipidolor** inj. 15 mg s.c.; opakovat nejdříve za 6 hod.

Po spinální anestezii:

❑ **Paracetamol Kabi** 1 g lag. (100 ml) i.v. při nástupu bolesti, kape 15 min; opakovat lze nejdříve za 4 hod.; max. 4 g/24 hod.
❑ Při trvající bolesti **Dipidolor** inj. 15 mg s.c.; opakovat nejdříve za 6 hod.

Po celkové anestezii:

❑ **Dipidolor** inj. 15 mg s.c. aplikován na operačním sále v ..... hod., dále při bolesti nejdříve za 6 hod.
❑ **Paracetamol Kabi** 1 g lag. (100 ml) i.v. při bolesti, kape 15 min; opakovat lze nejdříve za 4 hod.; max. 4 g/24 hod.

3. ANALGEZIE DOPLŇUJÍCÍ:

❑ **Novalgin** inj. 1 g / F1/1 100 ml i.v. v ..... hod., kape 15 min.; při bolesti lze opakovat nejdříve za 4-6 hod., max. 5 g /24 hod.
❑ **Nalbuphin** inj. 20 mg s.c. v ..... hod.; lze opakovat za 3-6 hod.
❑ **Morfin** 1% inj. 10 mg s.c. v ..... hod., lze opakovat za 4 hod.
❑ **Sufentanil Torrex**/❑ **Sufenta Forte** inj. 50 µg /F1/1 50 ml od ..... hod perfusorem i.v. dle NRS <3; startovací rychlost 5 ml/hod, max. 10 ml/hod
❑ Epidurálně směs SPRINGFUSOREM rychlost 4 ml/hod. od ..... hod.:
Marcain 0,5% inj 2 ml + ❑**Sufentanil Torrex**/❑**Sufenta** inj. 10 µg/2 ml + F1/1 6 ml
❑ .....

POZOR: Při váze pac. < 50 kg je max. dávka Paracetamolu 500 mg á 3 g/24 hod.

Podpis anesteziologa:

JINÁ DOPORUČENÍ:

Čas a podpis lékaře:

CHRONICKÁ MEDIKACE:

ZÁZNAM PORODNÍKA:

Ordinace ❑ POTVRZENY ❑ UKONČENY ošetřujícím lékařem v ..... hod.

Čas a podpis ošetřujícího lékaře:

THE LANCET

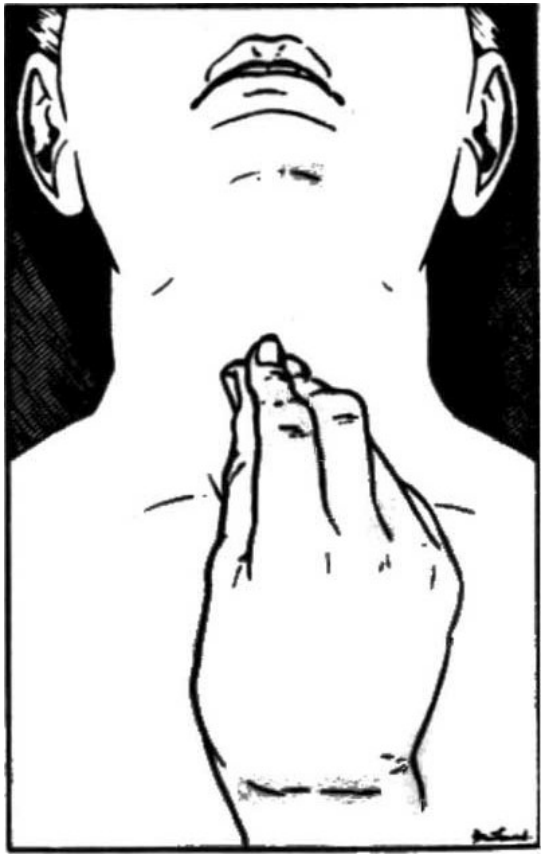
Preliminary Communications

CRICOID PRESSURE TO CONTROL REGURGITATION OF STOMACH CONTENTS DURING INDUCTION OF ANÆSTHESIA

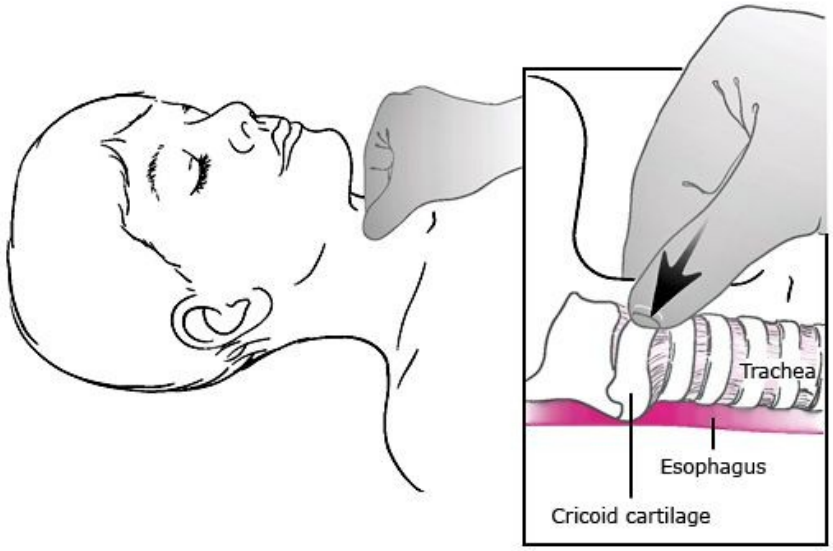
WHEN the contents of stomach or œsophagus gain access to the air-passages during anæsthesia the consequences are disastrous. In spite of modern anæsthetic techniques—or sometimes, regrettably, because of them—regurgitation is still a considerable hazard during the induction of anæsthesia, particularly for operative obstetrics and emergency general surgery.[1–8]

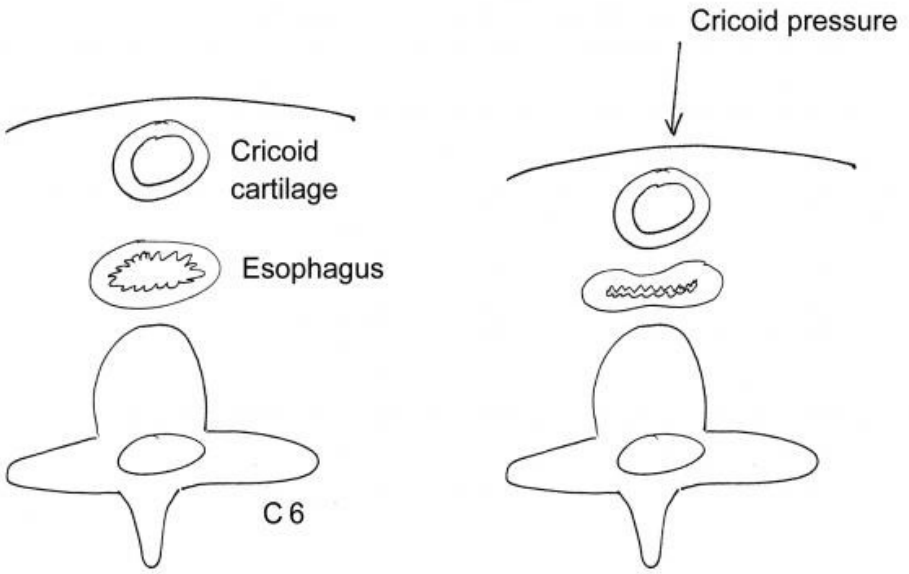
By a simple manœuvre during induction of anæsthesia, regurgitation of gastric or œsophageal contents can be controlled until intubation with a cuffed endotracheal tube is completed. The same manœuvre may also be used to prevent inflation of the stomach (a potent cause of regurgitation) resulting from positive-pressure ventilation

1. De Lee, J. B., Greenhill, J. P. Principles and Practice of Obstetrics; p. 255. Philadelphia, 1951.
2. Mendelson, C. L. *Amer. J. Obstet. Gynec.* 1946, **52**, 191.
3. Morton, H. J. V., Wylie, W. D. *Anæsthesia*, 1951, **6**, 190.
4. Coleman, D. J., Day, B. L. *Lancet*, 1956, i, 708.
5. Edwards, G., Morton, H. J. V., et al. *Anæsthesia*, 1956, ii, 194.
6. *Lancet*, 1956, i, 734.
7. *Rep. Publ. Hlth med. Subj., Lond.* no. 97, 1957.
8. Reports on Confidential Enquiries into Maternal Deaths in England and Wales, 1952-54 and 1955-57. H.M. Stationery Office



Sellick B. The Lancet 1961;2:404


Trachea
Esophagus
Cricoid cartilage


Cricoid pressure
Cricoid cartilage
Esophagus
C6

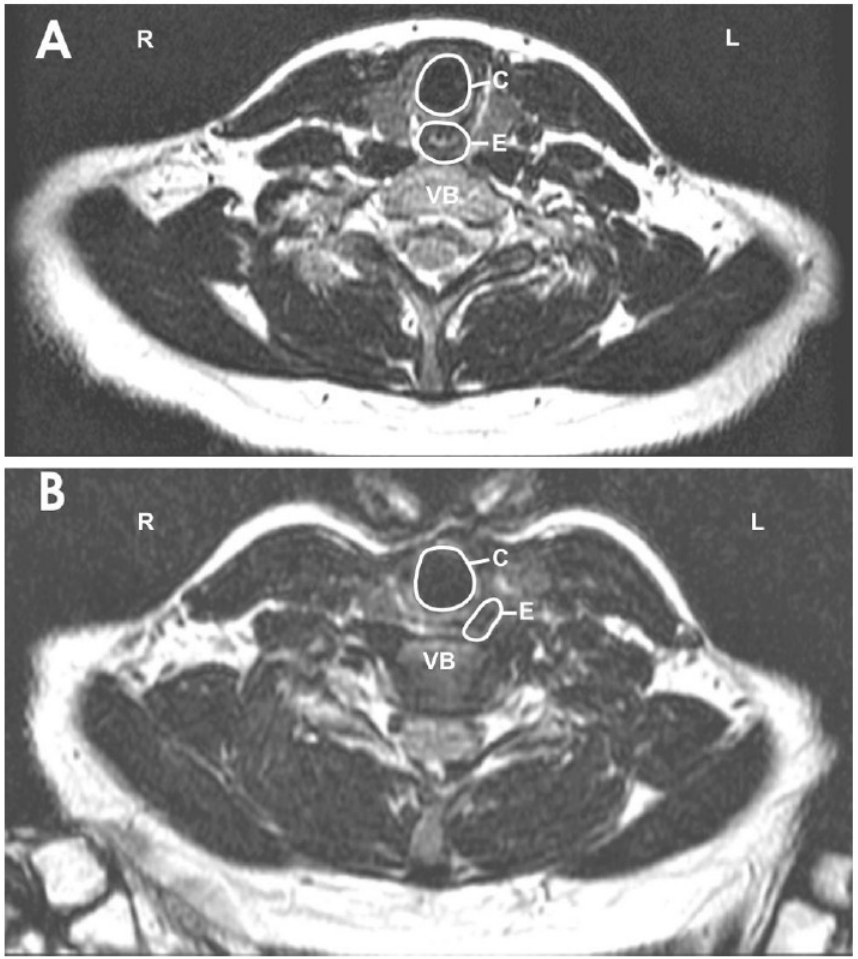


Fig. 3. (*A*) Magnetic resonance image of the neck without cricoid pressure. (*B*) Magnetic resonance image of the same subject demonstrating 12.1 mm of lateral esophageal displacement to the left with application of cricoid pressure. *C* = cricoid cartilage, *E* = esophagus, *VB* = vertebral body.

CRICOID PRESSURE DISPLACES ESOPHAGUS

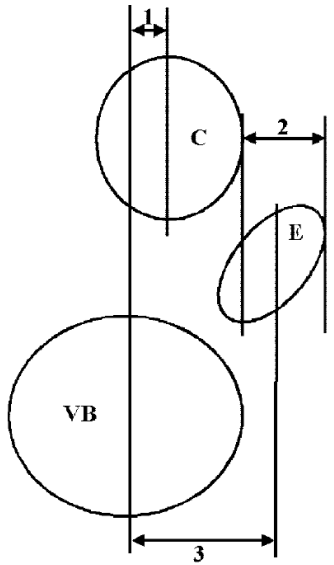
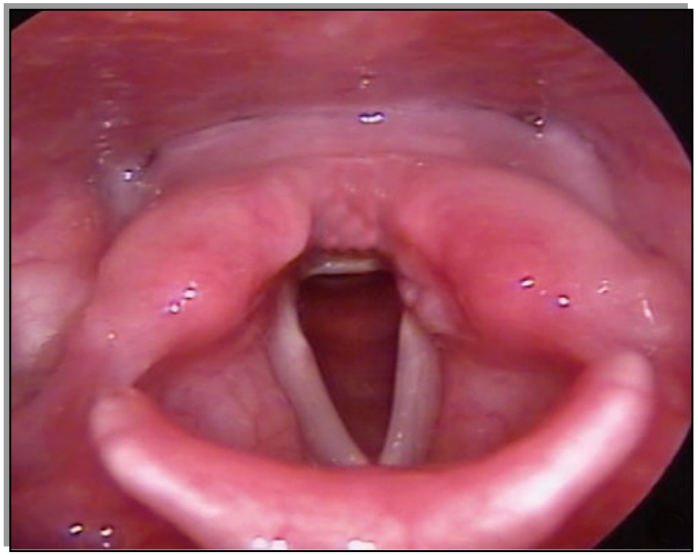
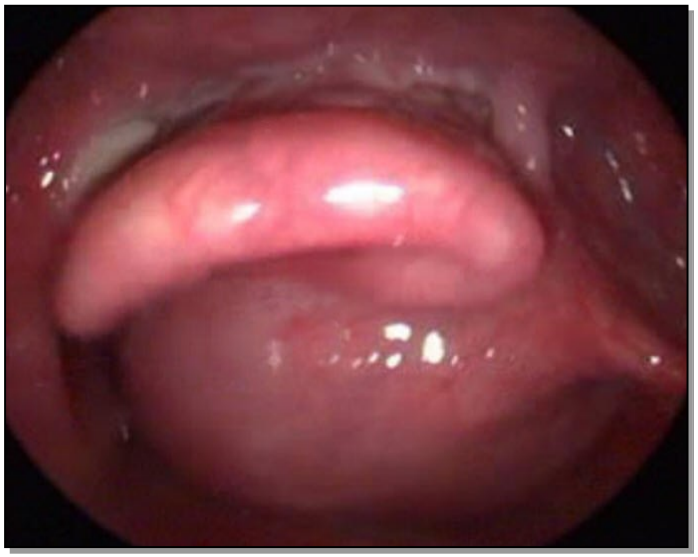


Fig. 1. Schematic diagram of the measurements made in this study. *C* = cricoid cartilage, *E* = esophagus, *VB* = vertebral body. *1* = amount of lateral displacement of C relative to the midline of VB, *2* = amount of unopposed esophagus, *3* = amount of lateral displacement of E relative to the midline of VB.

Smith KJ et al. Anesthesiology 2003; 99:60-4

Rice et al. Anesth Analg 2009;109:1546-52





…tlak 30 N na krikoidní chrupavku může zcela ‘zrušit’ vizualizaci glotis

Haslam et al. *Anaesthesia* 2005; 60: 41-47

Effect of Cricoid Pressure on the Success of Endotracheal Intubation with a Lightwand

R. Eric Hodgson, M.B., Ch.B.(Hons.), F.C.A.(S.A.)(Crit. Care), P. Dean Gopalan, M.B., Ch.B., F.C.A.(S.A.),* Richard C. Burrows, M.B., Ch.B., F.C.A.(S.A.)(Crit. Care),† Khangelani Zuma, M.Sc.‡*

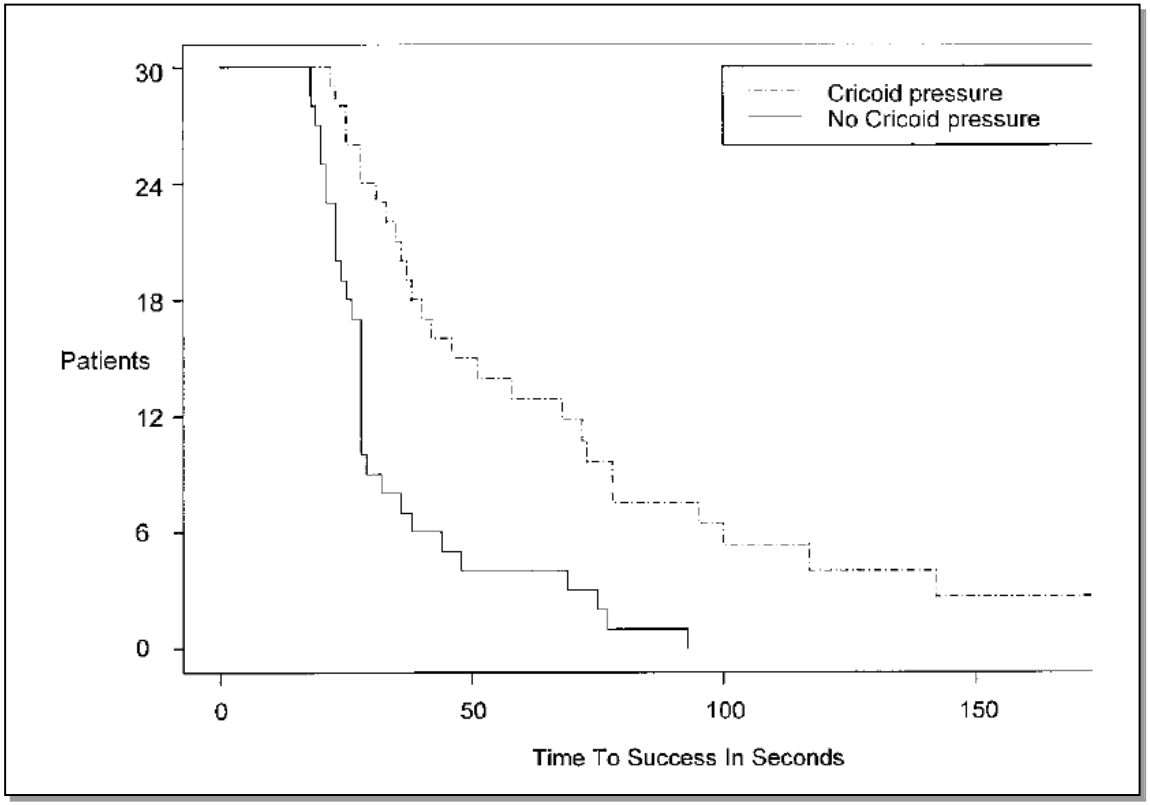


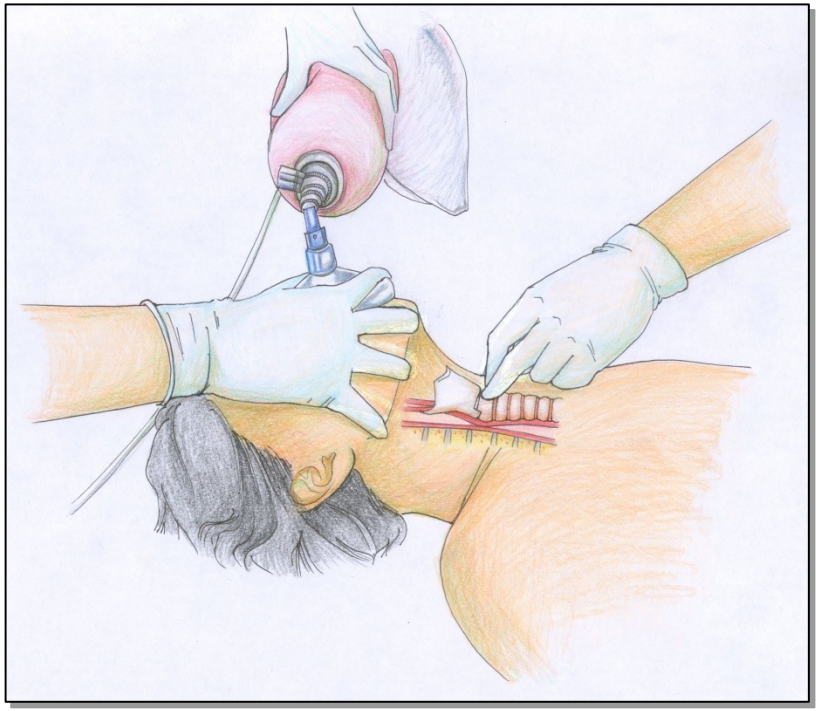
Fig. 1. Kaplan-Meier plot of time to successful intubation for the sixty patients. Thirty patients were intubated with cricoid pressure, with values for four patients requiring multiple attempts censored. Thirty patients were intubated without cricoid pressure. Time to successful intubation was significantly prolonged in the cricoid pressure group ($P = 0.0001$, log-rank test).

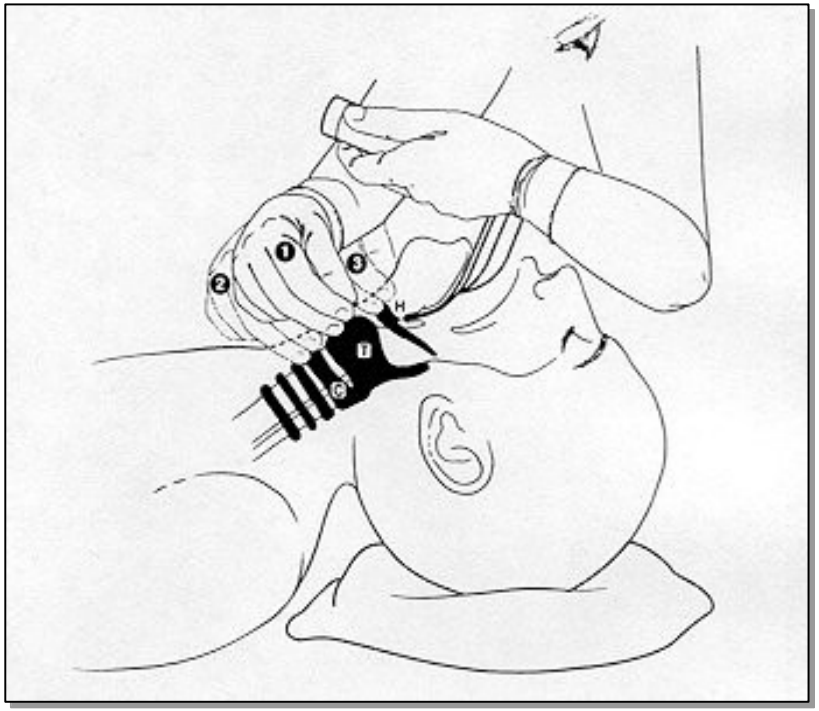
Hodgson. Anesthesiology 2001; 94:259–62

Sellick's Maneuver

"BURP"

Backward, Upward, Rightward Pressure





V 90% případů získáme nejlepší "pohled" tlakem na **štítnou chrupavku**, **nikoli krikoidální!**

PORODNICKÁ N TRIAS

1. Riziko obtížné intubace
2. Každá těhotná má plný žaludek
3. Hlavní příčinou mateřské mortality je plicní embolie

Table 2.4: UK Maternal deaths and mortality rates per 100,000 maternities by cause 1985–2014

(Maternal deaths by suicide classified as indirect for comparability)

Cause of death	Rates per 100,000 maternities									
	1985–87	1988–90	1991–93	1994–96	1997–99	2000–02	2003–05	2006–08	2009–11	2012–14
All Direct and Indirect deaths	9.83	10.08	9.85	12.19	11.4	13.07	13.95	11.39	10.63	8.54
Direct deaths										
Sepsis*	0.40	0.72	0.86	0.73	0.85	0.65	0.85	1.13	0.63	0.29
Pre-eclampsia and eclampsia	1.19	1.14	0.86	0.91	0.75	0.70	0.85	0.83	0.42	0.08
Thrombosis and thromboembolism	1.41	1.40	1.51	2.18	1.65	1.50	1.94	0.79	1.26	0.85
Amniotic fluid embolism	0.40	0.47	0.43	0.77	0.38	0.25	0.80	0.57	0.29	0.68
Early pregnancy deaths	0.71	1.02	0.73	0.68	0.80	0.75	0.66	0.48	0.17	0.29
Haemorrhage	0.44	0.93	0.65	0.55	0.33	0.85	0.66	0.39	0.59	0.56
Anaesthesia	0.26	0.17	0.35	0.05	0.14	0.30	0.28	0.31	0.12	0.09
Other Direct‡	1.19	0.72	0.60	0.32	0.33	0.40	0.19	0.17	-	-
All direct	6.13	6.14	5.53	6.10	4.99	5.31	6.24	4.67	3.49	2.84
Indirect deaths										
Cardiac disease	1.01	0.76	1.60	1.77	1.65	2.20	2.27	2.31	2.14	2.18
Other Indirect causes	1.90	1.91	1.64	1.77	1.93	2.50	2.37	2.14	3.03	1.62
Indirect neurological conditions	0.84	1.27	1.08	2.14	1.60	2.00	1.75	1.57	1.26	0.94
Psychiatric causes	†	†	†	0.41	0.71	0.80	0.85	0.57	0.55	0.77
Indirect malignancies	†	†	†	†	0.52	0.25	0.47	0.13	0.17	0.17
All Indirect	3.70	3.94	4.32	6.10	6.40	7.76	7.71	6.59	7.15	5.68
Coincidental	1.15	1.65	1.99	1.64	1.37	1.80	2.60	2.18	0.98	1.75

zavedení profylaxe LMWH!

*Including early pregnancy deaths as a result of sepsis

‡Acute fatty liver and genital tract trauma; included with pre-eclampsia and eclampsia and haemorrhage from 2009 onwards

†Deaths from these causes not included in reports from earlier years

Sources: CMACE, MBRRACE-UK

LMWH

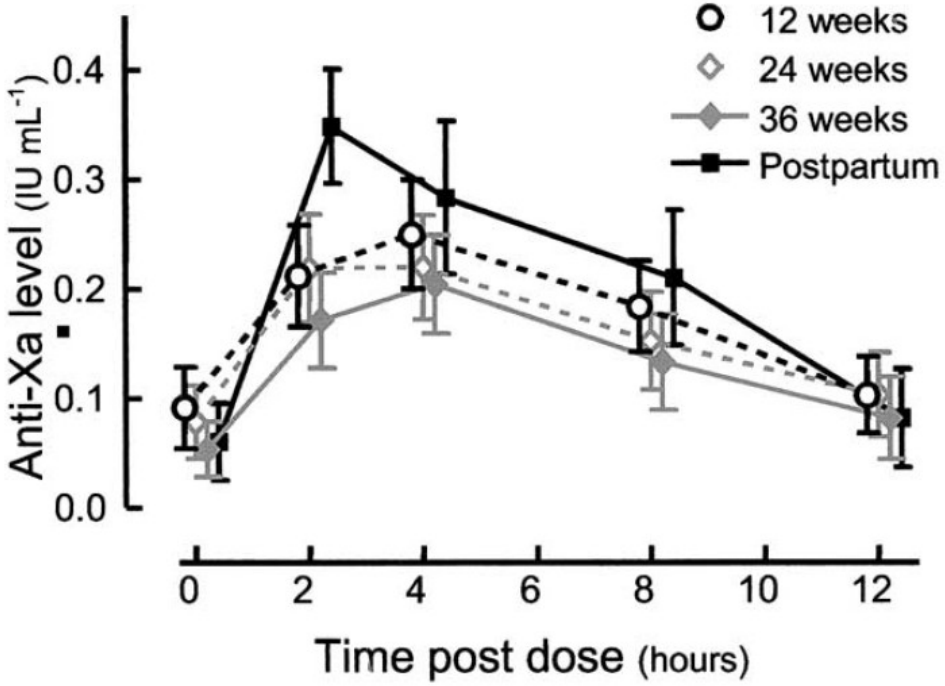


Figure 1. Anti-Xa levels in the first 12 hours after dalteparin administration, expressed as mean and 95% confidence intervals.

Sephton. Low Molecular Weight Heparin in Pregnancy. Obstet Gynecol 2003.

International Journal of Obstetric Anesthesia (2014) 23, 157–160
0959-289X/$ - see front matter
http://dx.doi.org/10.1016/j.ijoa.2013.11.006

www.obstetanesthesia.com

ORIGINAL ARTICLE

Enhanced recovery from obstetric surgery: a UK survey of practice

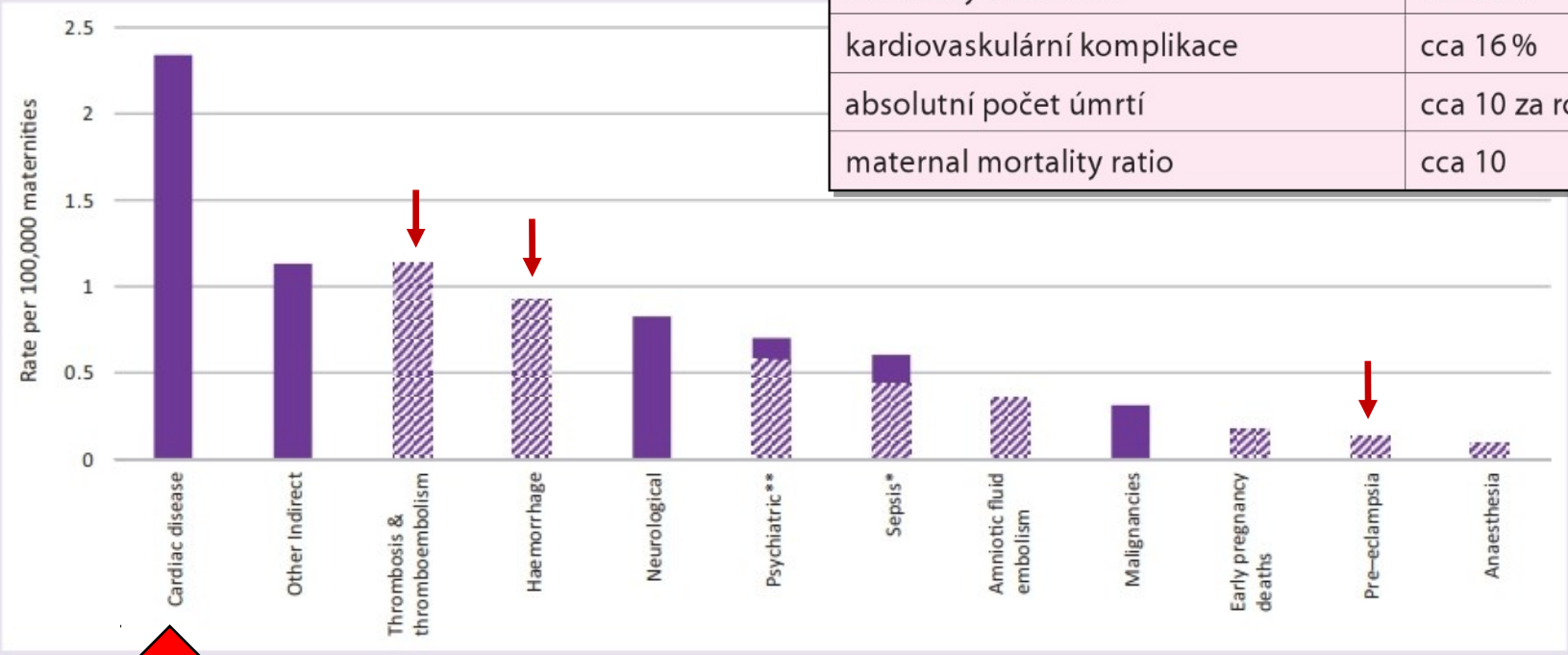
S. Aluri, I.J. Wrench
Department of Anaesthetics, Royal Hallamshire Hospital, Sheffield, UK

- mobilizace rodičky do 12 hod po operaci

Tab. 8.43 Hlavní příčiny mateřských úmrtí v České republice v průběhu let 1991–2010 (Petr Velebil, ÚPMD, 2012)

hemoragie	cca 23 %
trombózy a embolie	cca 20 %
kardiovaskulární komplikace	cca 16 %
absolutní počet úmrtí	cca 10 za rok
maternal mortality ratio	cca 10

Figure 2.3: Maternal mortality by cause 2013–15

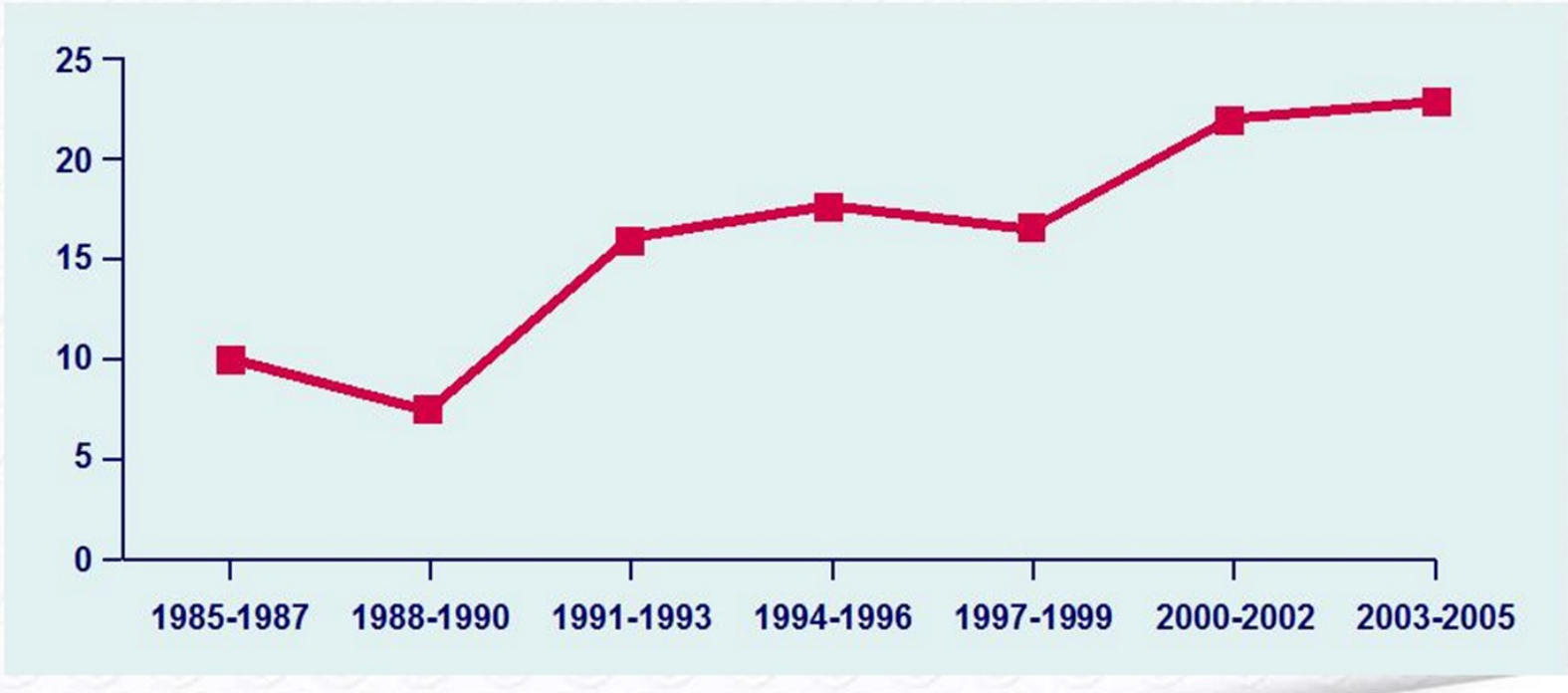


Hatched ba ow direct causes of death, solid bars indicate indirect causes of death;
*Rate for di sepsis (genital tract sepsis and other pregnancy related infections) is shown in hatched and rate for indirect sepsis (influenza, pneumonia, others) in solid bar
**Rate for suicides (direct) is shown in hatched and rate for indirect psychiatric causes (drugs/alcohol) in solid bar
Source: MBRRACE-UK

MBRRACE-UK - Saving Lives, Improving Mothers' Care 2017

Evolution of Maternal Mortality from Heart Disease in the UK

Cardiac



Roos-Hesselink et al. *Heart* 2009;95:680-6

www.escardio.org/guidelines

European Heart Journal 2011, doi: 10.1093/eurheartj/ehr218

EUROPEAN SOCIETY OF CARDIOLOGY®

Maternal, Newborn and Infant Clinical Outcome Review Programme

MBRRACE-UK
Mothers and Babies: Reducing Risk through Audits and Confidential Enquiries across the UK

Saving Lives, Improving Mothers' Care

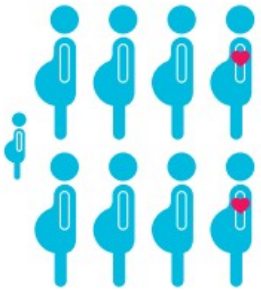
Surveillance of maternal deaths in the UK 2012–14 and lessons learned to inform maternity care from the UK and Ireland Confidential Enquiries into Maternal Deaths and Morbidity 2009–14

December 2016

University of Oxford · HQIP · University of Leicester · TIMMS · University of Birmingham · Sands · NHS Bradford Teaching Hospitals · npeu

Key messages from the report 2016

MBRRACE-UK
Mothers and Babies: Reducing Risk through Audits and Confidential Enquiries across the UK



8.5 **women** per 100,000 died during pregnancy or up to six weeks after giving birth or the end of pregnancy in 2012 - 14

2 **women** per 100,000 died from **heart** ♥ **disease**

Heart disease can happen

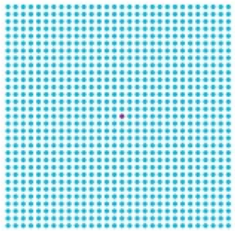
Women known to have **heart disease** are **high risk** and need specialist care

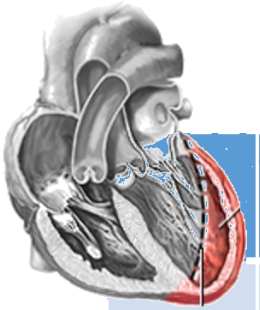
Persistent breathlessness when lying flat is **not normal** in pregnancy and may mean heart problems

Be aware severe **chest pain** spreading to the left arm or back may be **cardiac**

Good care makes a difference

Less than **1 woman in every million** who gives birth now dies from **pre-eclampsia**, but to detect it blood pressure and urine must be checked at every antenatal visit





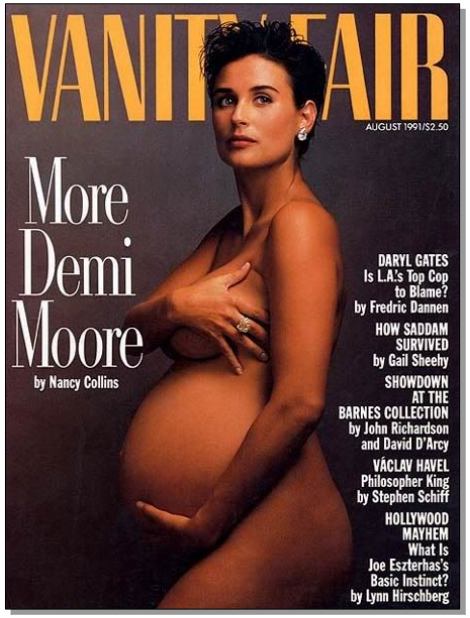
PŘÍZNAKY

KARDIÁLNÍ SELHÁNÍ	TĚHOTENSTVÍ
snížená tolerance cvičení / únava	zvýšená tělesná hmotnost, fyziologická anémie
ortopnoe	větší tlak dělohy na bránici, vliv progesteronu a hyperventilace
dyspnoe	přítomno u 76% žen v 34. týdnu
palpitace	sinusová tachykardie
slabost / synkopa	aortokavální komprese
periferní otoky	vyskytuje se u 2/3 zdravých těhotných

ramaraj. cleveland clinic journal of medicine volume 76 • number 5 may 2009

KONTRAINDIKACE TĚHOTENSTVÍ

Conditions in which pregnancy risk is WHO IV (pregnancy contraindicated)
• Pulmonary arterial hypertension of any cause.
• Severe systemic ventricular dysfunction (LVEF < 30%, NYHA III-IV).
• Previous peripartum cardiomyopathy with any residual impairment of left ventricular function.
• Severe mitral stenosis, severe symptomatic aortic stenosis.
• Marfan syndrome with aorta dilated > 45 mm. • Aortic dilatation > 50 mm in aortic disease associated with bicuspid aortic valve.
• Native severe coarctation.


VANITY FAIR
AUGUST 1991/$2.50
More Demi Moore
by Nancy Collins
DARYL GATES
Is L.A.'s Top Cop to Blame?
by Fredric Dannen
HOW SADDAM SURVIVED
by Gail Sheehy
SHOWDOWN AT THE BARNES COLLECTION
by John Richardson and David D'Arcy
VÁCLAV HAVEL
Philosopher King
by Stephen Schiff
HOLLYWOOD MAYHEM
What Is Joe Eszterhas's Basic Instinct?
by Lynn Hirschberg


VOGUE
JAPAN
Beauty
Yes.
I'm pregnant.
And FAT!
So what?
THINK SMART
A new mindfulness


The Murder Capital of N.Y. / Jonathan Chait on Fed-Bashing
Against Bipartisanship, by Frank Rich
The Myth of the Independent Voter
NEW YORK
REBECCA BLACK
Is She Just Too Old For This?
New parents over 50—child-rearing's final frontier.
By Lisa Miller

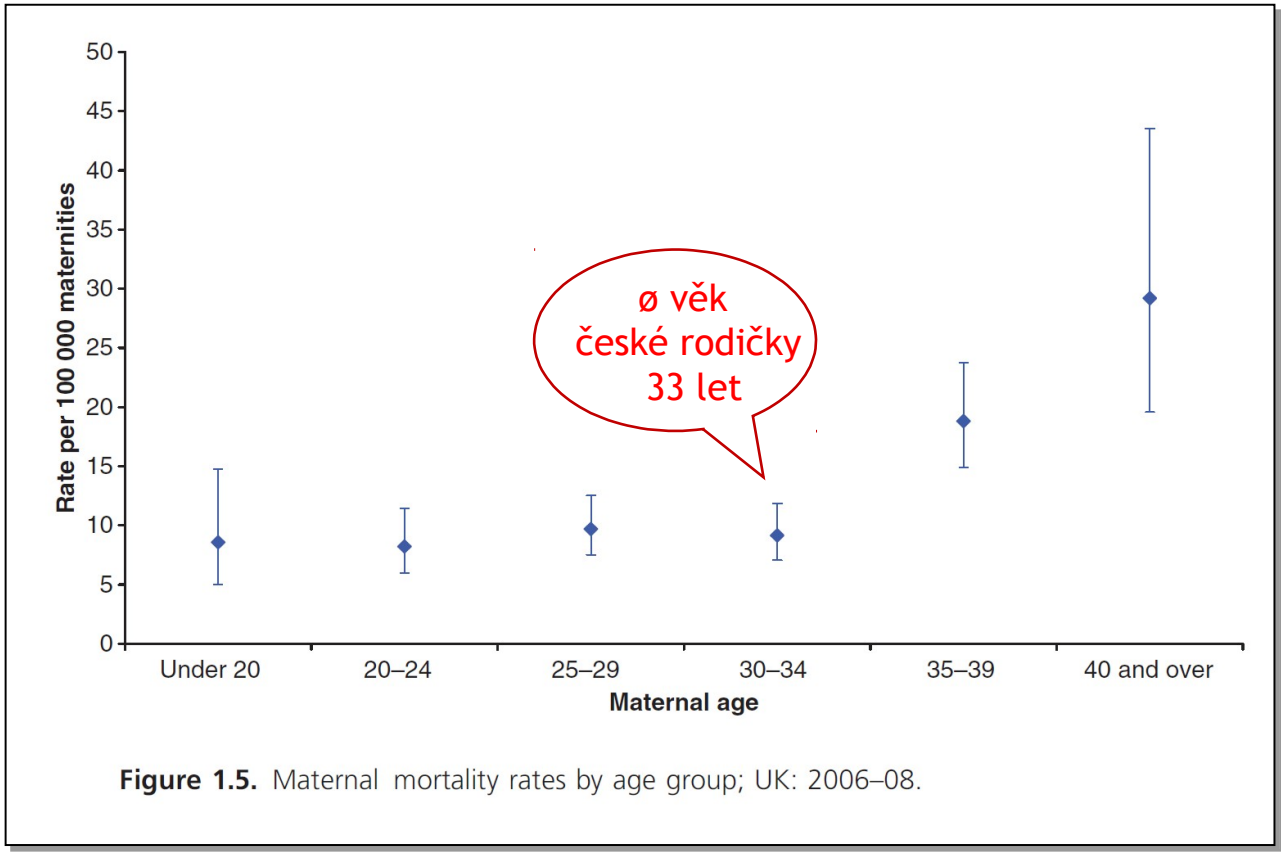
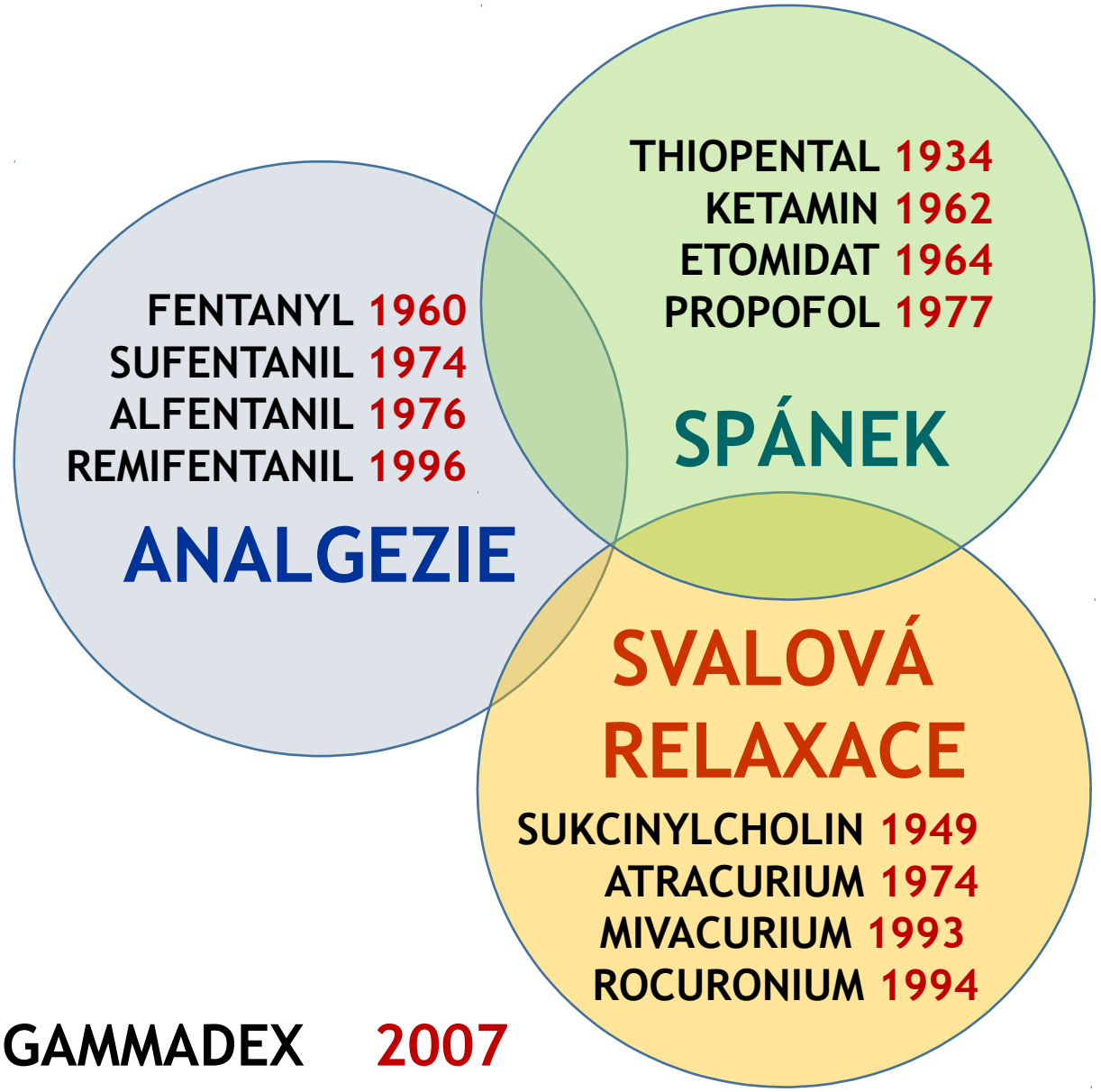


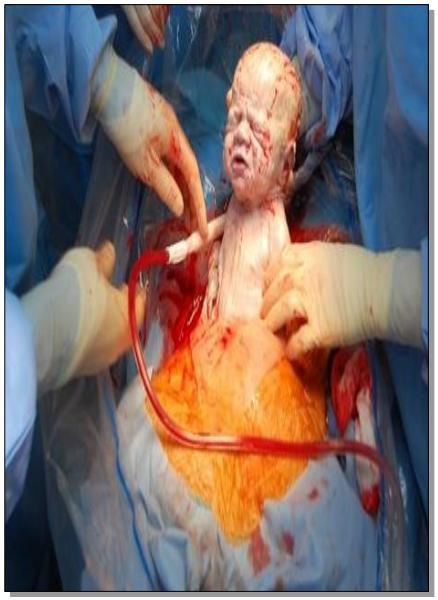
Figure 1.5. Maternal mortality rates by age group; UK: 2006–08.

The Eighth Report of the Confidential Enquiries into Maternal Deaths in the United Kingdom, 2011.



SUGAMMADEX 2007

CELKOVÁ ANESTEZIE



The salient characteristics of RSI were delineated by Stept and Safar in 1970 [3].

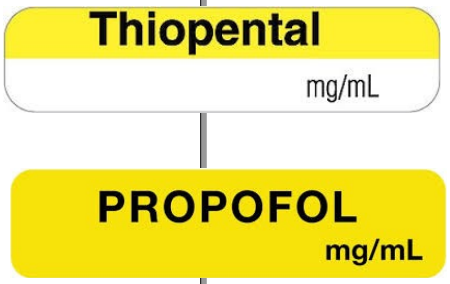
- Preoxygenation
- Predetermined doses of thiopental and S
- Cricoid force
- Avoidance of ventilation by bag and ma
- Tracheal intubation

Sharp LM, Levy DM. Current Opinion in Anaesthesiology 2009, 22:357–361

CELKOVÁ ANESTEZIE

The salient characteristics of RSI were delineated by Stept and Safar in 1970 [3].

- Preoxygenation
- Predetermined doses of thiopental and SCh
- Cricoid force
- Avoidance of ventilation by bag and mask
- Tracheal intubation

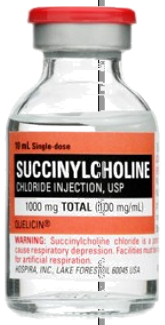


Sharp LM, Levy DM. Current Opinion in Anaesthesiology 2009, 22:357–361

CELKOVÁ ANESTEZIE

The salient characteristics of RSI were delineated by Stept and Safar in 1970 [3].

- Preoxygenation
- Predetermined doses of thiopental and SCh
- Cricoid force
- Avoidance of ventilation by bag and mask
- Tracheal intubation



Sharp LM, Levy DM. Current Opinion in Anaesthesiology 2009, 22:357–361

The Response of Newborns to Succinylcholine and d-Tubocurarine

Leonard F. Walts, M.D., and John B. Dillon, M.D.†*

Anesthesiology. 1969 Jul;31(1):35-8.

Results

Mean age of the 60 adult patients was 41 years. The group given succinylcholine received an average of 68 mg (range 54–83) of drug. All patients had 100 per cent depression in twitch force. Recovery times to 10, 50 and 90 per cent of control values averaged 7.0, 8.5, and 10 minutes, respectively.

Acta Anaesthesiol Scand 2011; 55: 203–208
Printed in Singapore. All rights reserved

ACTA ANAESTHESIOLOGICA SCANDINAVICA
doi: 10.1111/j.1399-6576.2010.02365.x

Desaturation following rapid sequence induction using succinylcholine vs. rocuronium in overweight patients

L. TANG[1], S. LI[1], S. HUANG[1], H. MA[1] and Z. WANG[2]
Departments of [1]Anesthesiology and [2]Pain Management, Shanghai First People's Hospital, Shanghai Jiaotong University, Shanghai, China

Background: Rapid sequence induction may be associated with hypoxemia. The purpose of this study was to investigate the possible difference in desaturation during rapid sequence induction in overweight patients using either succinylcholine or rocuronium.
Methods: Sixty patients with a body mass index (BMI) between 25 and 30 kg/m^2, American Society of Anesthesiologists class I or II, undergoing general anesthesia were randomly divided into a succinylcholine group and a rocuronium group. After a 3-min preoxygenation, patients received rapid sequence induction of general anesthesia with midazolam–fentanyl–propofol and succinylcholine (1.5 mg/kg) or rocuronium (0.9 mg/kg). Ventilation was not initiated until oxygen saturation declined to 92%. We measured the times when oxygen saturation reached 98%, 96%, 94% and 92%. Safe Apnea Time was defined as the time from administration of neuromuscular blocking drugs to oxygen saturation fell to 92%. The recovery period was defined as the time from initiation of ventilation until oxygen saturation was 97%. Arterial blood gases were taken at baseline, after preoxygenation and at 92% oxygen saturation.
Results: The mean Safe Apnea Time (95% CI) was 283 (257–309) s in succinylcholine vs. 329 (303–356) s in rocuronium ($P = 0.01$). The mean recovery period (95% CI) was 43 (39–48) s in succinylcholine vs. 36 (33–38) s in rocuronium ($P = 0.002$). Blood gas analysis showed no difference between the two groups.
Conclusions: Succinylcholine was associated with a significantly more rapid desaturation and longer recovery of oxygen saturation than rocuronium during rapid sequence induction in overweight patients.

Accepted for publication 29 October 2010

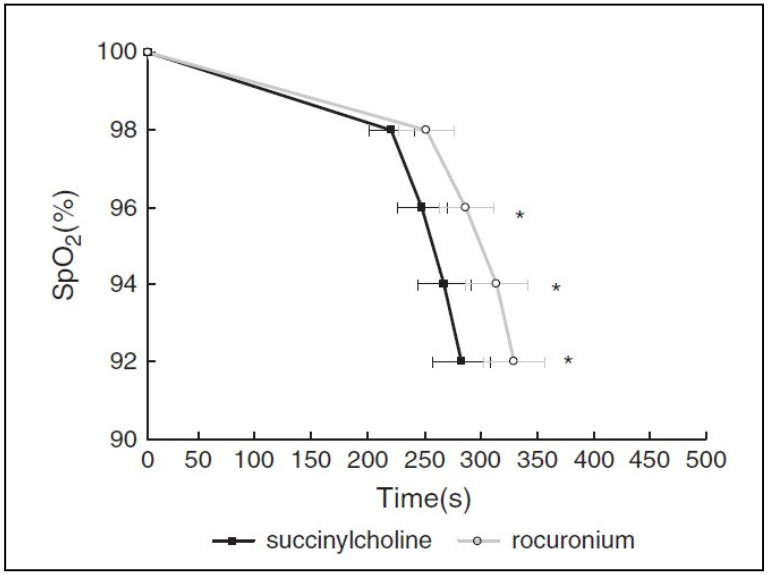


*Fig. 2. Changes in oxygen saturation (S_pO_2) with time during non-hypoxic apnea in the succinylcholine or the rocuronium group. Mean values (points) for both groups are shown. The vertical lines indicate 95% CI. The curves show smooth before S_pO_2 reach 98%, but afterward fall straightly to 92% S_pO_2. *$P < 0.05$ compared with succinylcholin.*

Anaesthesia
Journal of the Association of Anaesthetists of Great Britain and Ireland
Anaesthesia, 2010, **65**, pages 358–361 doi:10.1111/j.1365-2044.2

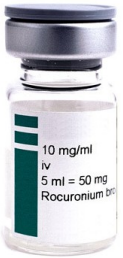
ORIGINAL ARTICLE

Effect of suxamethonium vs rocuronium on onset of oxygen desaturation during apnoea following rapid sequence induction

S. K. Taha,[1] M. F. El-Khatib,[2] A. S. Baraka,[3] Y. A. Haidar,[4] F. W. Abdallah,[5] R. A. Zbeidy[4] and S. M. Siddik-Sayyid[1]

1 Associate Professor, 2 Professor, 3 Emeritus Professor, 4 Chief Resident, 5 Fellow, Department of Anesthesiology, American University of Beirut, Beirut, Lebanon

Summary
This study investigates the effect of suxamethonium vs rocuronium on the onset of haemoglobin desaturation during apnoea, following rapid sequence induction of anaesthesia. Sixty patients were randomly allocated to one of three groups. Anaesthesia was induced with lidocaine 1.5 mg.kg^{-1}, fentanyl 2 μg.kg^{-1} and propofol 2 mg.kg^{-1}, followed by either rocuronium 1 mg.kg^{-1} (Group R) or suxamethonium 1.5 mg.kg^{-1} (Group S). The third group received propofol 2 mg.kg^{-1} and suxamethonium 1.5 mg.kg^{-1} only (Group SO). The median (IQR [range]) time to reach S_pO_2 of 95% was significantly shorter in Group S (358 (311–373 [215–430]) s) than in Group R (378 (370–393 [366–420]) s; $p = 0.003$), and shorter in Group SO (242 (225–258 [189–370]) s) than in both Group R ($p < 0.001$) and Group S ($p < 0.001$). When suxamethonium is administered for rapid sequence induction of anaesthesia, a faster onset of oxygen desaturation is observed during the subsequent apnoea compared with rocuronium. However, time to desaturation is prolonged whenever lidocaine and fentanyl precede suxamethonium.



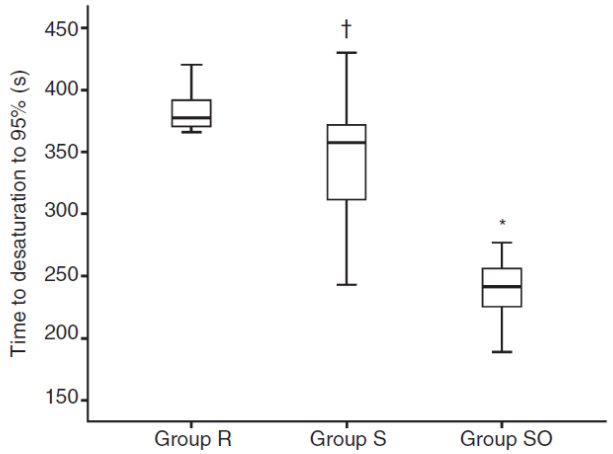


Figure 1 Time to reach S_pO_2 of 95% during apnoea following induction of anaesthesia with lidocaine/fentanyl/propofol/rocuronium (Group R), lidocaine/fentanyl/propofol/suxamethonium (Group S), or propofol/suxamethonium (Group SO).

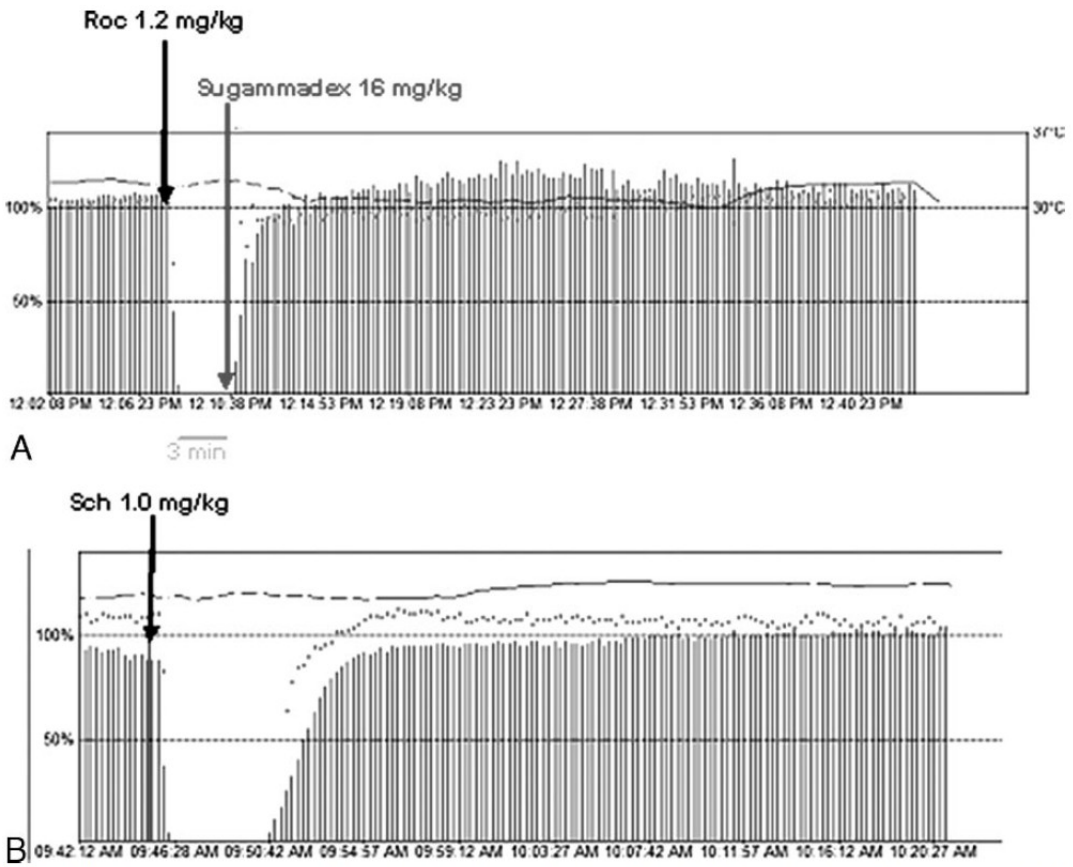


Figure 4. Panel A shows the recovery of the twitch height and train-of-four (TOF) ratio after administration of 1.2 mg/kg rocuronium followed 3 min later by 16 mg/kg sugammadex, both given IV. Recovery to a first twitch height (T1) of 90% and a TOF ratio of 0.94 occurred 110 s later. The onset-offset time with this sequence (i.e., the time from the end of the injection of rocuronium to a T1 recovery to 90%) was 4 min 47 s. Panel B shows the effects of administering 1.0 mg/kg succinylcholine (Sch) with spontaneous recovery to a T1 of 90% occurring after 9 min and 23 s.

Naguib M. Anesth Analg 2007;104:575–81

0,6 mg/kg

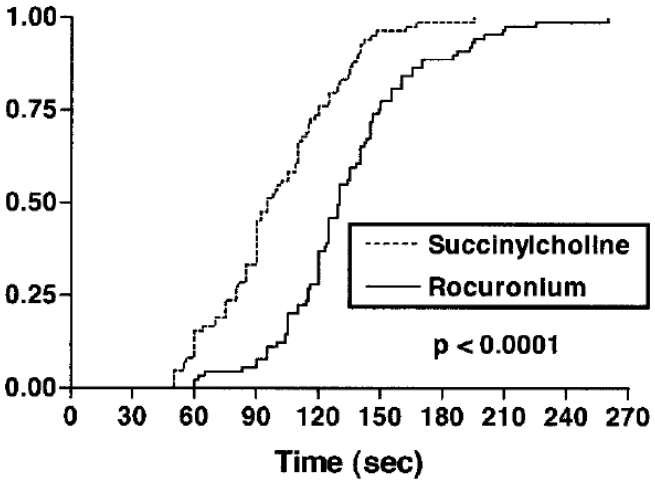
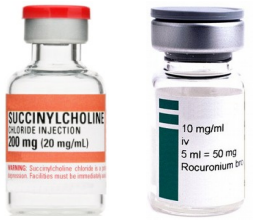


Figure 2. Kaplan-Meyer curve of the probability of the completion of the endotracheal intubation sequence including succinylcholine or rocuronium as the neuromuscular blocking drug. Time 0 denotes the beginning of the injection of the induction drug propofol. The endotracheal intubation sequence was defined to be completed upon the first appearance of end-tidal carbon dioxide after intubation. Curves differ significantly ($P < 0.0001$; logrank test).



Sluga M et al. Anesth Analg 2005;101:1356 –61

1 mg/kg

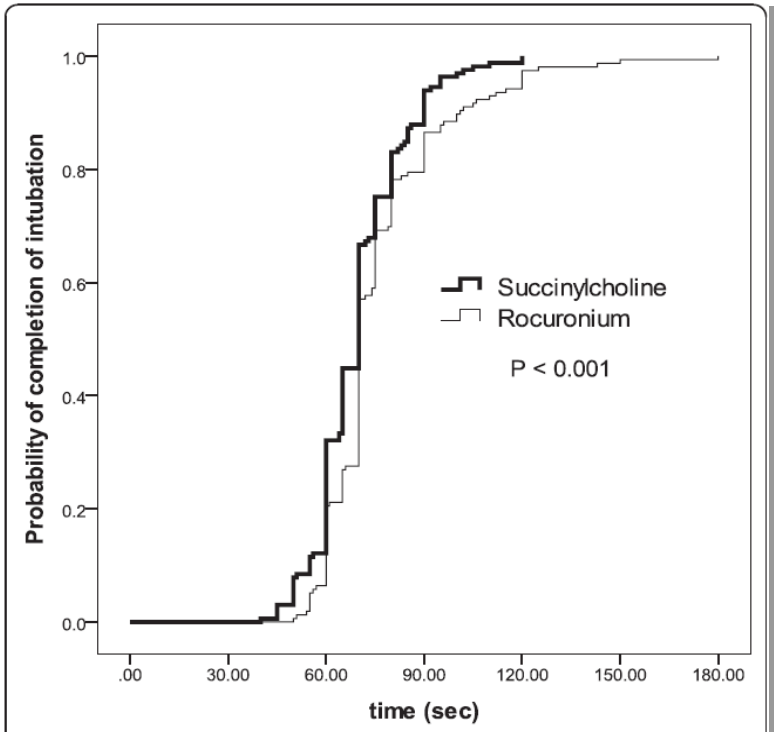


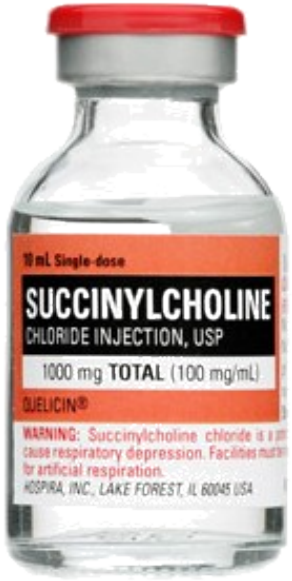
Figure 2 Intubating times. Kaplan-Meyer curve of the probability of the completion of the endotracheal intubation sequence including succinylcholine or rocuronium in patients successfully intubated in the first attempt. The x-axis denotes the time interval after the beginning of the injection of the induction drug. The intubation sequence was defined to be completed upon the first appearance of end-tidal carbon dioxide after intubation.

Stephan C Marsch, et al. Crit Care. 2011;15(4):R199-R199

TABLE 9. *Side effects of succinylcholine.*

- Massive hyperkalemia in susceptible patients
- Cardiac arrhythmias
- Muscle fasciculations
- Myalgias
- Rhabdomyolysis
- Increased intracranial pressure
- Increased intragastric pressure
- Increased intraocular pressure
- Malignant hyperthermia
- Masseter muscle spasm or jaw rigidity
- Prolonged apnea (1–4 hours), if atypical plasma cholinesterase

From Bevan DR. Complications of muscle relaxants. *Semin Anesth.* 1995;14:63.



Anaesthesia
Journal of the Association of Anaesthetists of Great Britain and Ireland

Correspondence

Anaesthesia, 2009, **64**, pages 781–792

Bag-mask ventilation in rapid sequence induction

Gentle ventilation during rapid sequence induction is, as most things in anaesthetics, a balance of risks (aspiration) and benefits (preventing desaturation). Given the available evidence, routine exclusion of ventilation from a rapid sequence induction does not seem justified. Indeed it may have significant advantages in many patient sub-groups. Anecdotally, this technique is increasing in our region, something we plan to investigate more formally.

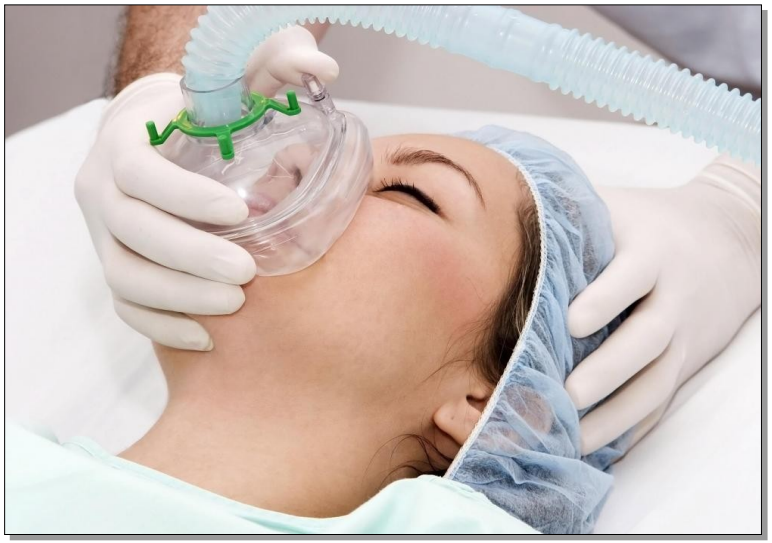
DIFFICULT AIRWAY SOCIETY DAS

Areas for Discussion in 2006

- **Gentle facemask ventilation (inspiratory pressure less than 20 cm water) is acceptable to some experienced practitioners during the period of waiting for the relaxant to work. Is this reasonable?**

http://www.das.uk.com/guidelines/rsi.html

PREOXYGENACE !!!



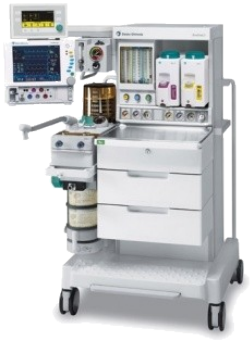
A. lehká obličejová kyslíková maska

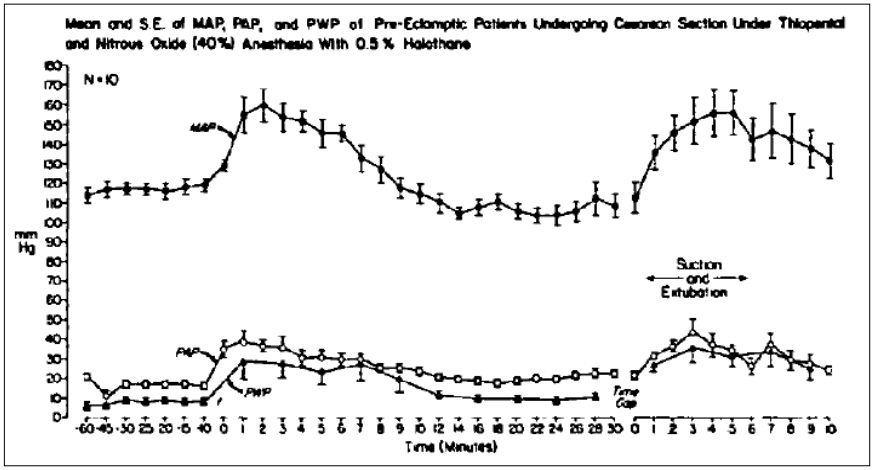
5-8 minut dýchání (100%) O_2 normálním objemem

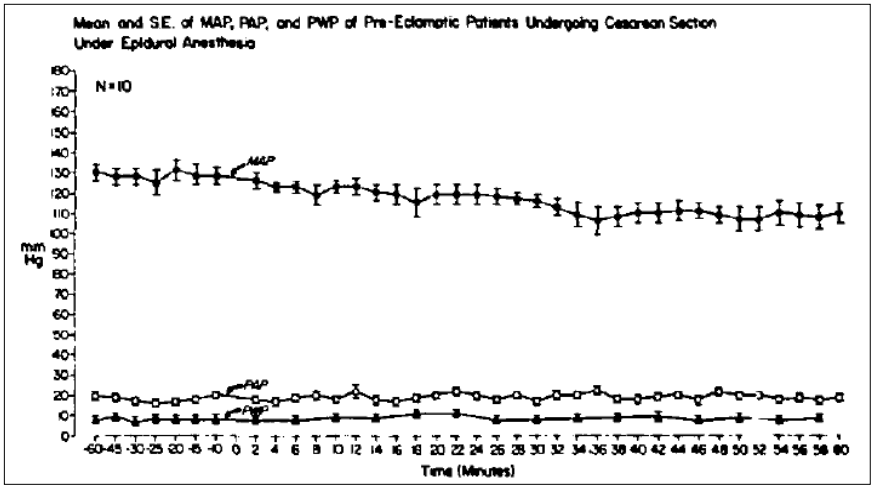
B. plně těsnící obličejová kyslíková maska

3-8 vdechů v objemu vitální kapacity (100% O_2)

NE OPIOIDY !!! (???)

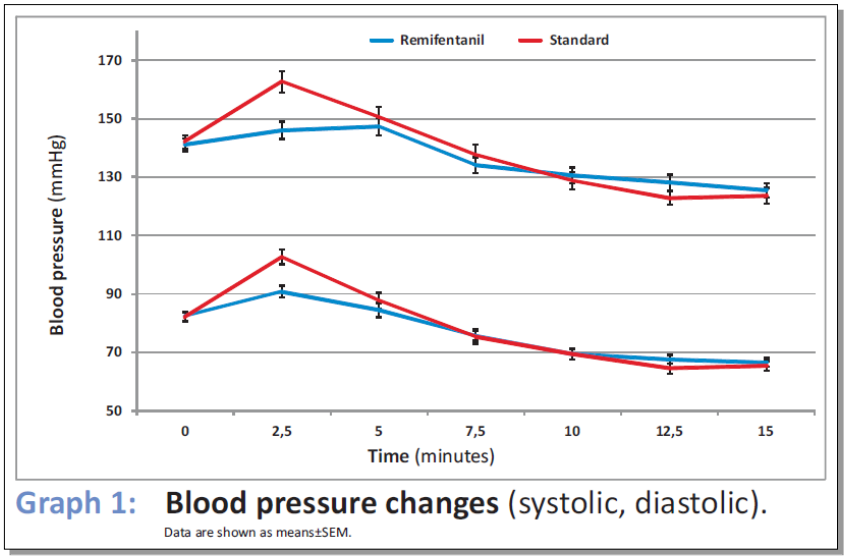




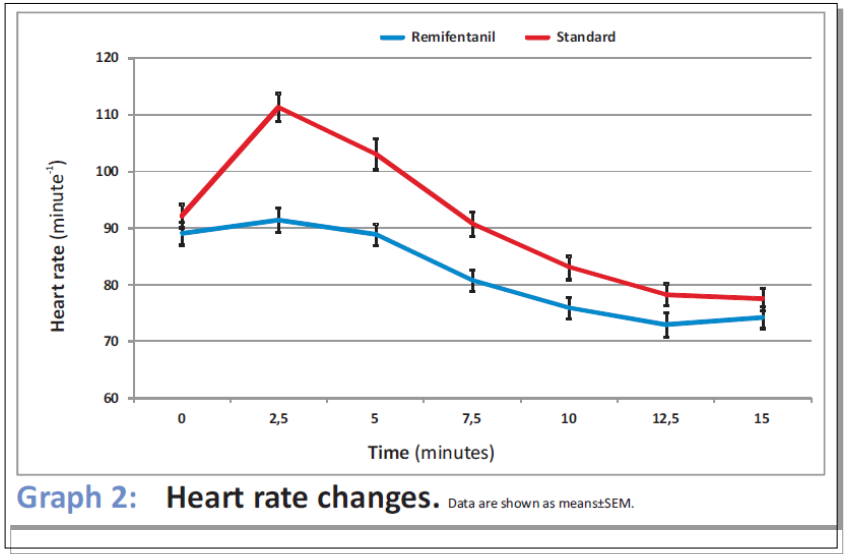


Hodgkinson et al. Can J Anesth 1980 27: 389-394.

Remifentanil 1 μg/kg před úvodem do celkové anestezie

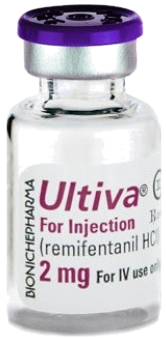


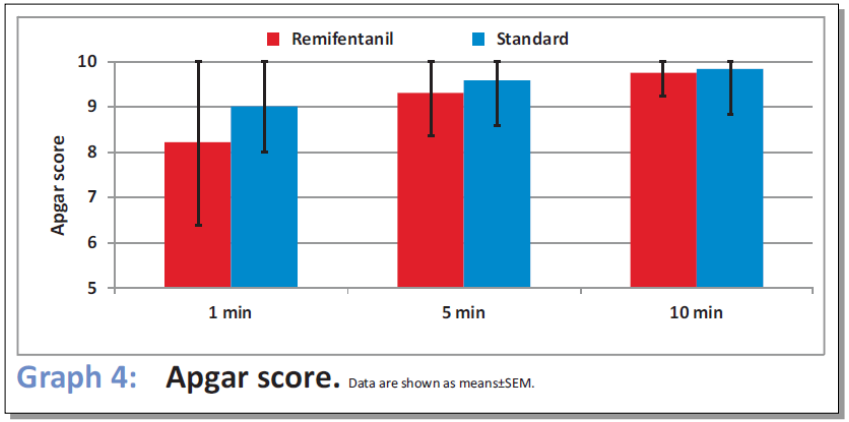
Graph 1: **Blood pressure changes** (systolic, diastolic).
Data are shown as means±SEM.



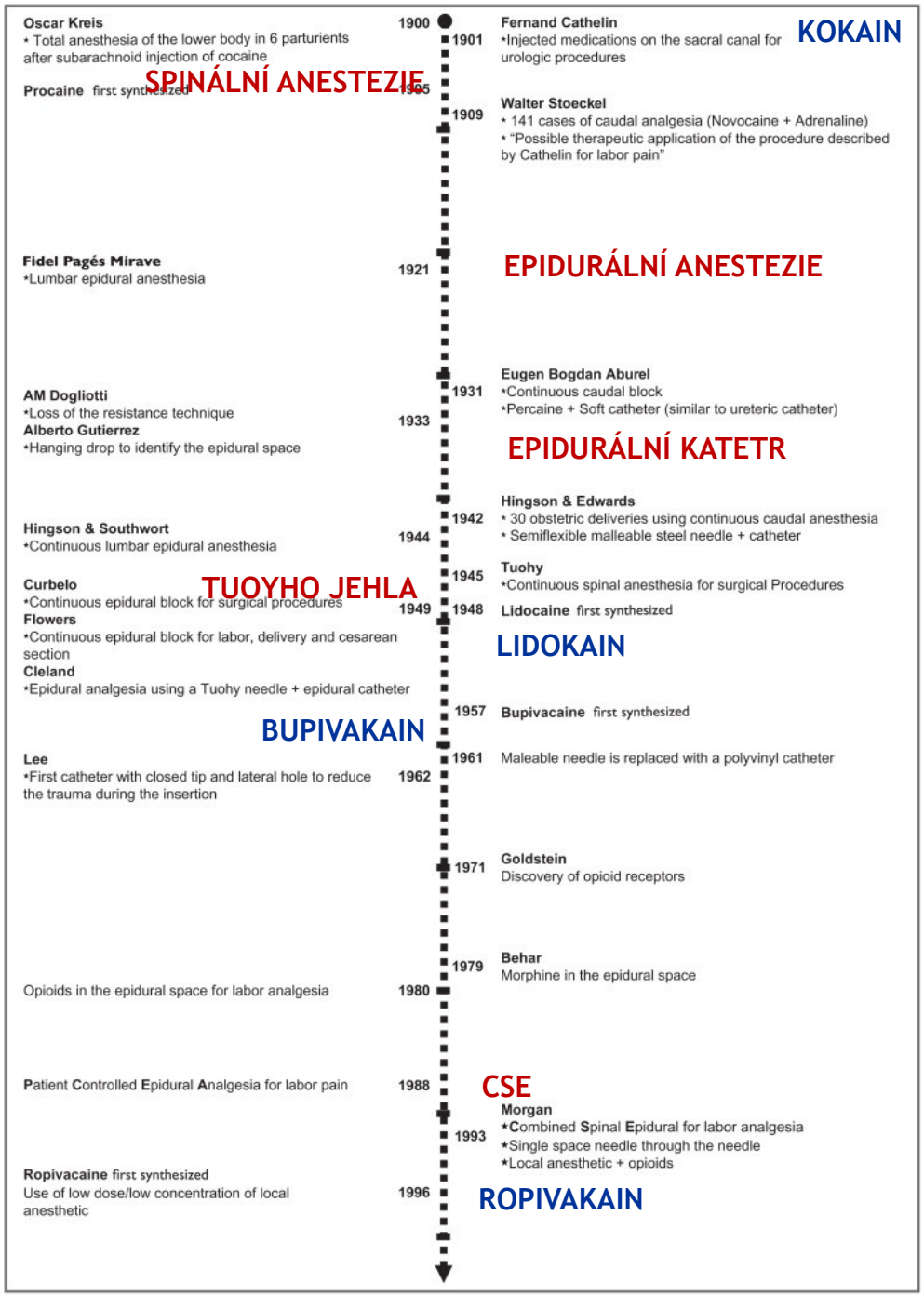
Graph 2: **Heart rate changes.** Data are shown as means±SEM.

Nosková, Bláha et al. BMC Anesthesiology 2015 (in press).





Graph 4: **Apgar score.** Data are shown as means±SEM.



Silva Mt al. Local Reg Anesth. 2010; 3: 143–153

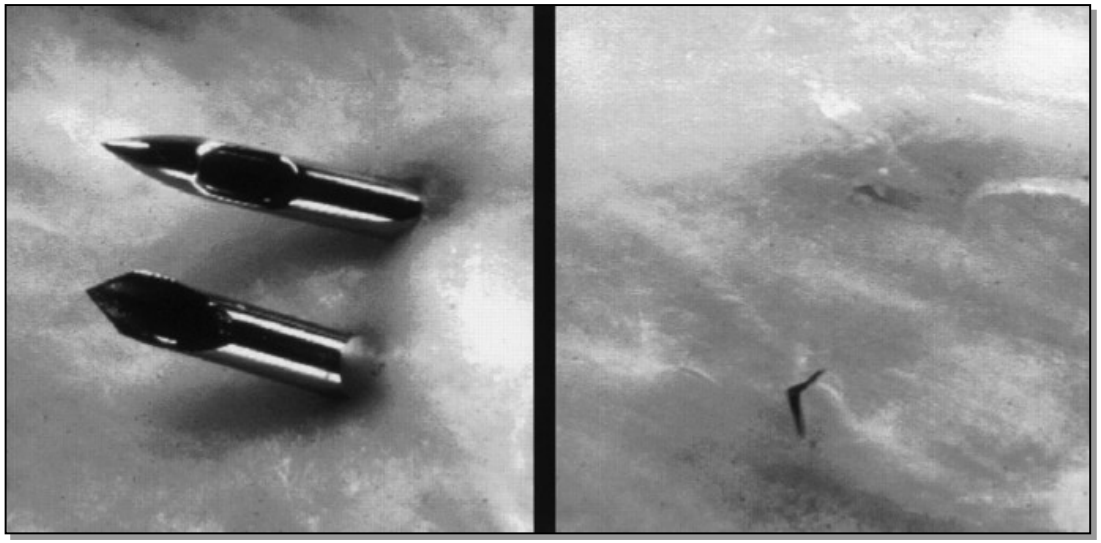
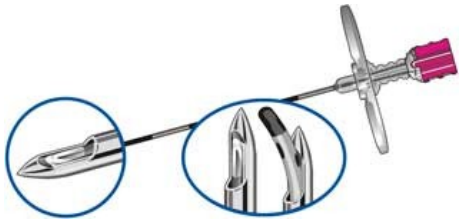


FIGURE 1. Dural puncture holes made by cutting and noncutting needles (Reproduced with permission from Strupp, et al. *Neurology*. 2001; 57:2310–2312).

HUBER POINT

Edward B. Tuohy
(1908–1959:USA)

Robert F. Husted
(1928–2008:USA)



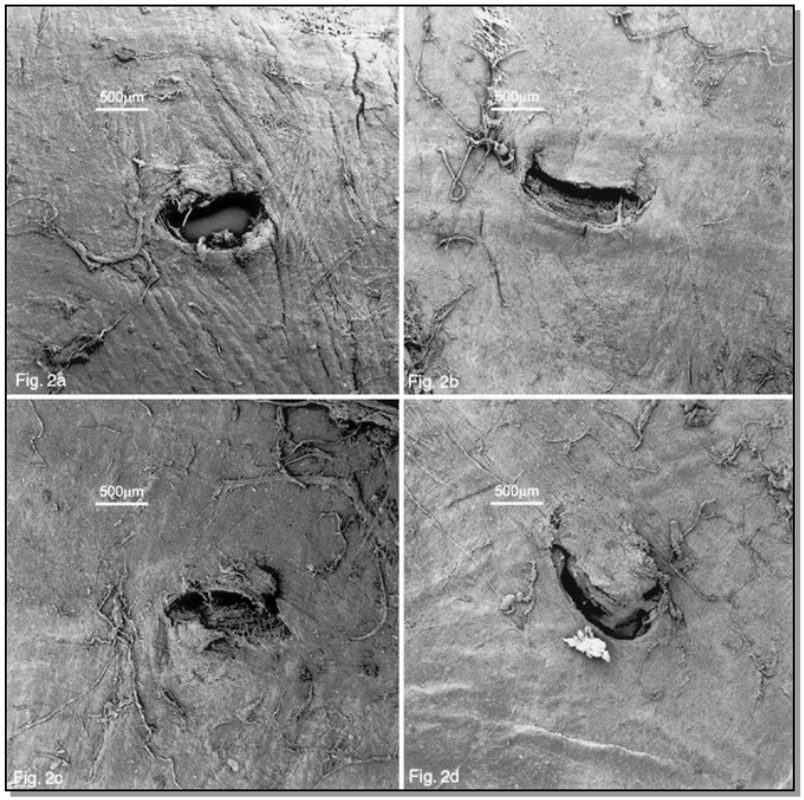


Fig. 2. Scanning electron microscopic images of (*a*) a 17-gauge Hustead epidural needle puncture (bevel parallel, 90° angle), (*b*) a 17-gauge Tuohy epidural needle puncture (bevel parallel, 90° angle), (*c*) an 18-gauge Special Sprotte® epidural needle puncture (90° angle), and (*d*) an 18-gauge Crawford epidural needle puncture (bevel parallel, 90° angle).

Pamela J. Angle et al. Anesthesiology. 2003;99(6):1376-1382

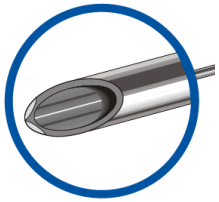


Table 2. Effect of Epidural Needle Design on CSF Leak (90° Punctures, Bevel Parallel), Cadaver n = 10

Epidural Needles	17-Gauge Hustead	17-Gauge Tuohy	18-Gauge Tuohy	20-Gauge Tuohy	18-Gauge Special Sprotte®	18-Gauge Crawford
17-Gauge Hustead	516 ± 319	0.3668	0.2922	0.0018*	0.2078	0.1326
17-Gauge Tuohy		405 ± 209	0.8312	0.0024*	0.6468	0.4312
18-Gauge Tuohy			420 ± 191	0.0003*	0.4324	0.2707
20-Gauge Tuohy				100 ± 112	0.8162	0.0001*
18-Gauge Special Sprotte®					360 ± 208	0.9698
18-Gauge Crawford						356 ± 121

Part 1 results are presented in the form of a *P* value matrix. Mean ± SD cerebrospinal fluid (CSF) leak rates are found on the diagonal for each needle in ml/15-min interval. The table may be read in the following way: Mean ± SD leak for the 17-g Hustead = 516 ± 319 (17-g Hustead [row] *vs.* 17-g Hustead [column]). Mean ± SD leak rate for the 17-g Tuohy (row) *vs.* 17-g Tuohy (column) = 405 ± 209. *P* value for differences in leak for the 17-g Hustead (row) *vs.* 17-g Tuohy (column) = 0.3668. *P* value required to reach statistical significance, corrected for multiple testing = 0.003.

* Statistically significant *P* values.

Pamela J. Angle et al. Anesthesiology. 2003;99(6):1376-1382

Original Article

Influence of needle diameter on spinal anaesthesia puncture failures for caesarean section: A prospective, randomised, experimental study

Fausto Fama' [b,1,*], Cecile Linard [b,1], Damien Bierlaire [a], Maria Gioffre'-Florio [b], Jacques Fusciardi [a], Marc Laffon [a]

[a] University Hospital of Tours, Department of Anaesthesiology and Intensive Care, Hôpital Bretonneau, 2 [illegible] 37044 Tours cedex 9, France
[b] University Hospital of Messina, Department of Human Pathology, Via Consolare Valeria, 1 [illegible]

27 G více selhání, 26 G více PDPH

Table 2

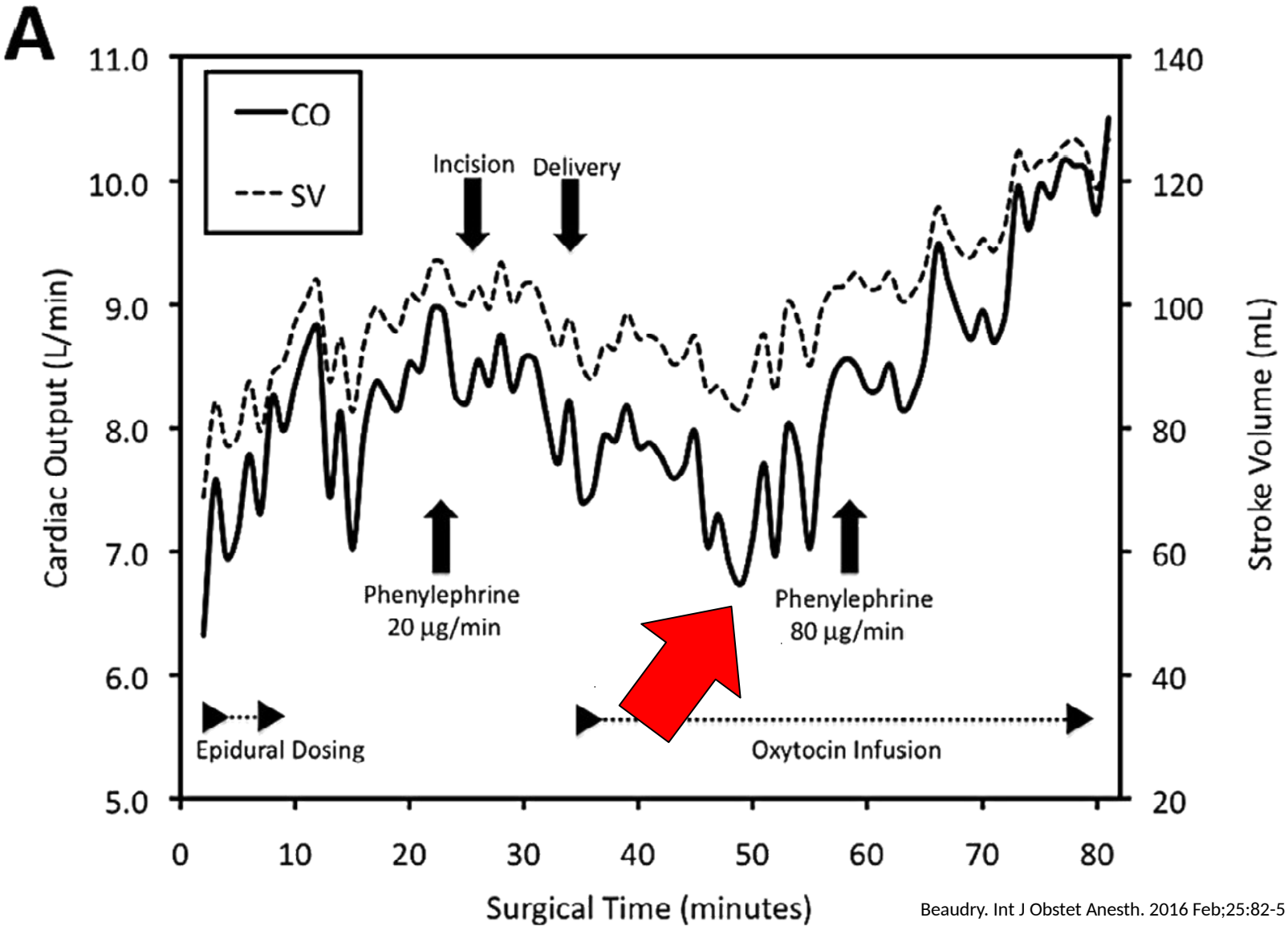
Spinal puncture failures and incidence of postdural puncture headache. The number of puncture failures was statistically significant in the 27 G group ($P = 0.006$ versus the 25 G group, $P < 0.001$ versus the 26 G group). No statistically significant difference was found between the 25 G and 26 G groups ($P = 0.606$). Only 2 general anaesthesia procedures were carried out after 25 G attempt failures.

Group	25 G	26 G	27 G
Number of patients: *n*	109	121	98
Failure: *n* (%)	2 (1.8)[a]	1 (0.9)[a]	12 (10.9)
Headache: *n* (%)	5 (4.6)	3 (2.5)	2 (2.0)
Blood patch: *n*	1	1	0

[a] $P < 0.05$, 27 G vs. 25G and 26 G.

jan.blaha@vfn.cz

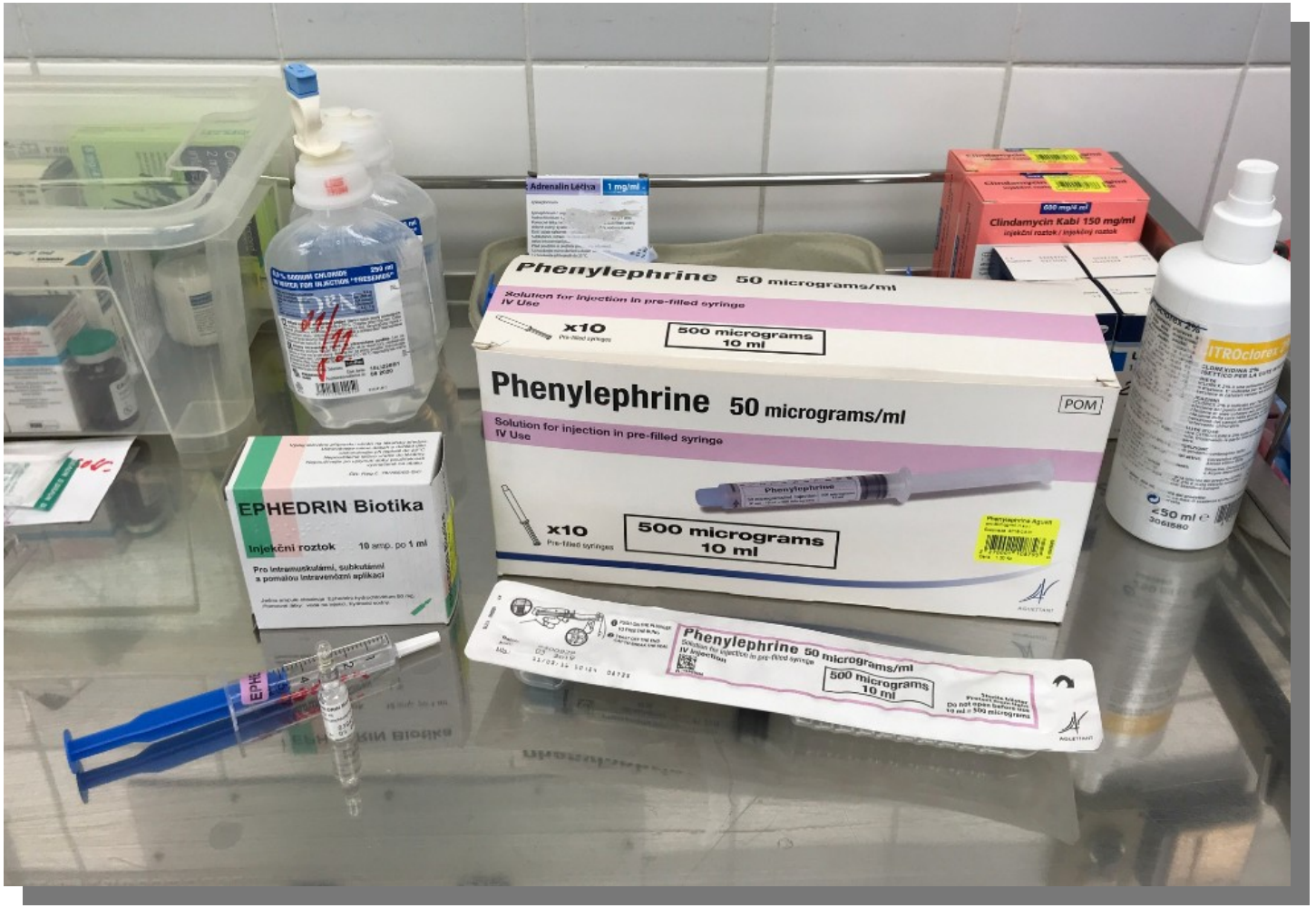
24-year-old woman with dilated cardiomyopathy secondary to Marfan syndrome, aortic arch, aortic valve and mitral valve replacements and a left ventricular ejection fraction of 37%. Epidural anesthesia with 2% lidocaine 20 mL, epinephrine and fentanyl 100 mcg



Beaudry. Int J Obstet Anesth. 2016 Feb;25:82-5

KARIM

RA a HYPOTENZE



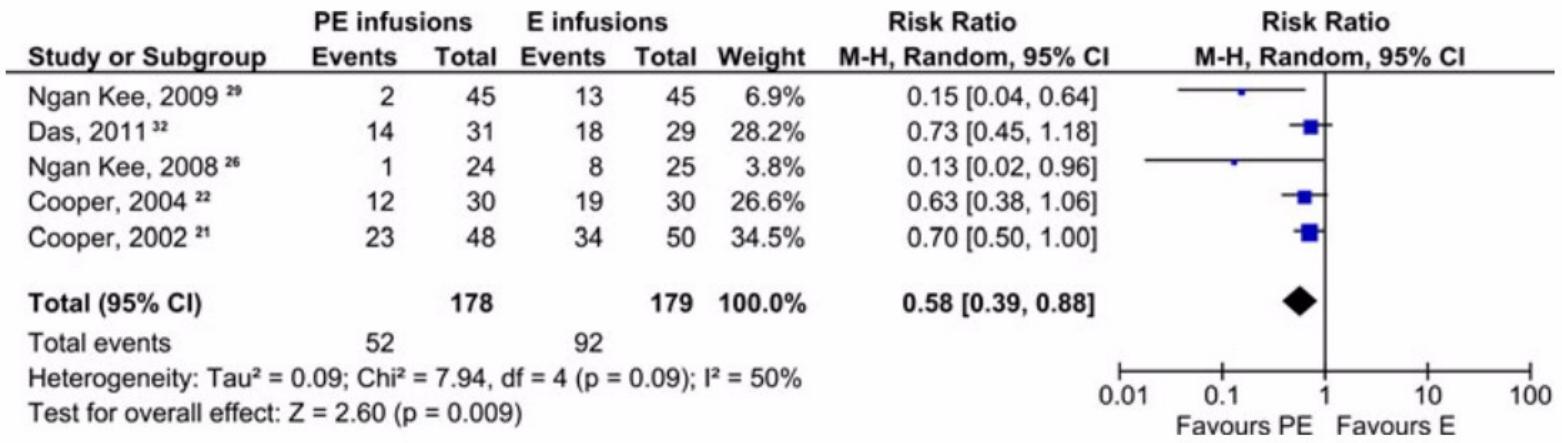
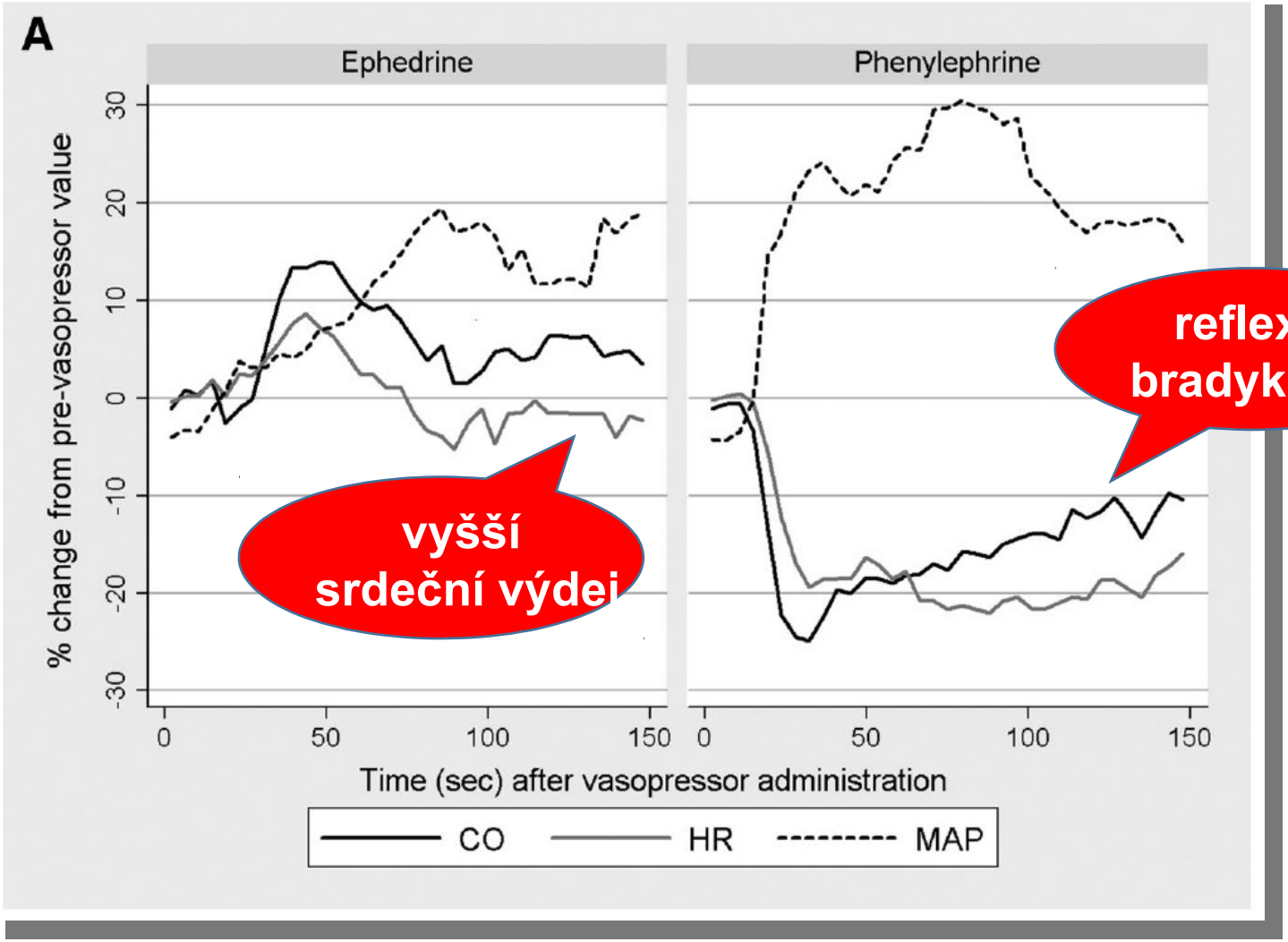


Figure 4 Forest plot for the rate of hypotension during caesarean section before fetal delivery: prophylactic phenylephrine (PE) infusion vs ephedrine (E) infusion. M-H, Mantel-Haenszel; Random, random-effects model.



Dyer RA et al. Anesthesiology. 2009 Oct;111(4):753-65

Randomized Double-blinded Comparison of Norepinephrine and Phenylephrine for Maintenance of Blood Pressure during Spinal Anesthesia for Cesarean Delivery

Warwick D. Ngan Kee, M.B.Ch.B., M.D., F.A.N.Z.C.A., F.H.K.A.M.,
Shara W. Y. Lee, B.Sc.(Hons.), M.Sc., Ph.D., Floria F. Ng, R.N., B.A.Sc.,
Perpetua E. Tan, B.Sc., M.Phil., Kim S. Khaw, M.B.B.S., M.D., F.R.C.A., F.H.K.A.M.

ABSTRACT

Background: During spinal ar decreases in maternal heart rate and cardiac output. Norepinep to potent α-adrenergic receptor activity and therefore may fects on heart rate and cardiac output compared with phenyle

Methods: In a randomized, do y under spinal anesthesia were randomized to have systolic bl of norepinephrine 5 μg/ml or phenylephrine 100 μg/ml. The re heart rate and neonatal outcome were also compared.

Results: Normalized cardiac ou group *versus* the phenylephrine group (median 102.7% [interq , $P = 0.004$, median difference 9.8%, 95% CI of difference bet ision, for norepinephrine *versus* phenylephrine, systolic blood p diac output were greater, systemic vascular resistance was lower, ar . Neonatal outcome was similar between groups.

Conclusions: When given by comp fusion during spinal anesthesia for cesarean delivery, norepinephrine was effective for maintaining blood pressure and was associated with greater heart rate and cardiac output compared with phenylephrine. Further work would be of interest to confirm the safety and efficacy of norepinephrine as a vasopressor in obstetric patients. **(Anesthesiology 2015; 122:736-45)**

Randomized Double-blinded Comparison of Norepinephrine and Phenylephrine for Maintenance of Blood Pressure during Spinal Anesthesia for Cesarean Delivery

Warwick D. Ngan Kee, M.B.Ch.B., M.D., F.A.N.Z.C.A., F.H.K.A.M.,
Shara W. Y. Lee, B.Sc.(Hons.), M.Sc., Ph.D., Floria F. Ng, R.N., B.A.Sc.,
Perpetua E. Tan, B.Sc., M.Phil., Kim S. Khaw, M.B.B.S., M.D., F.R.C.A., F.H.

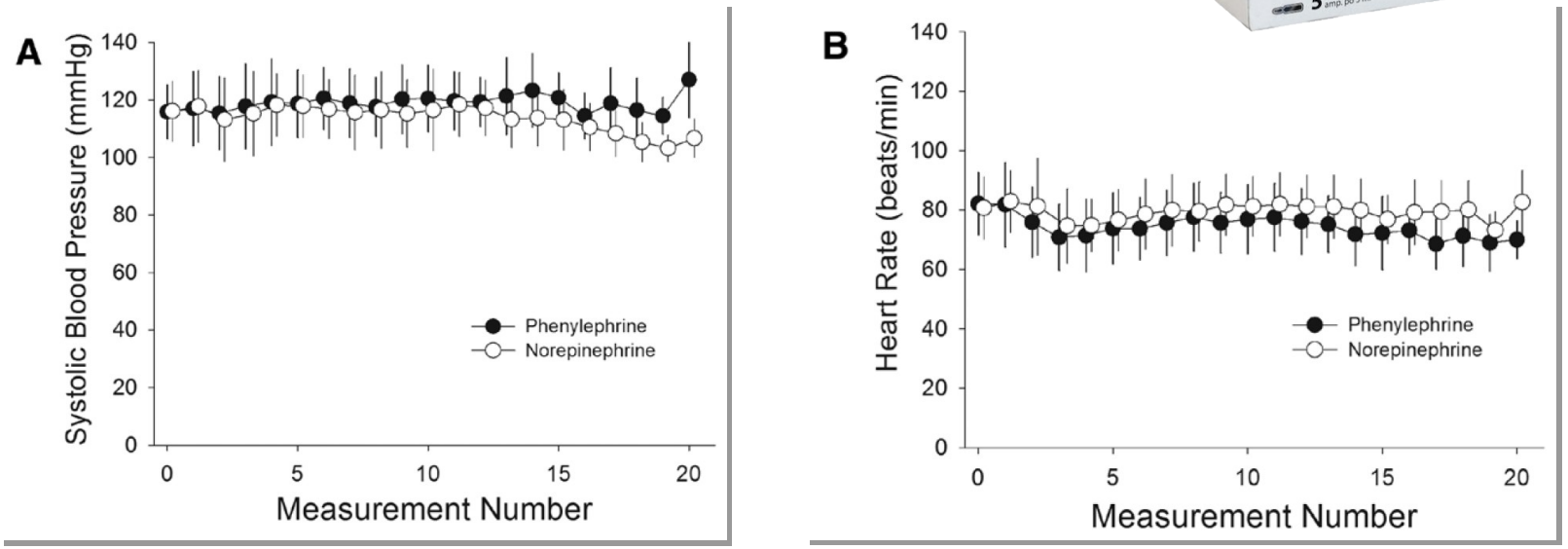


Fig. 2. Serial changes in systolic blood pressure (*A*) and heart rate (*B*). On the left side of the panels, data are serial values for the first 20 measurements shown as mean and SD. Because the noninvasive blood pressure monitor took a variable time to start and complete each blood pressure measurement, tick values on the horizontal axis represent the sequential number of each measurement made with the monitor set to an automatic 1-min cycling time rather than exact chronological time. On the right side of the panels, *bars* show the area under the curve for the two groups (N = norepinephrine and P = phenylephrine) standardized for each patient by dividing by the number of data points recorded and shown as median and interquartile range. Comparison of the calculated values for standardized area under the curve showed that systolic blood pressure was similar between groups ($P = 0.36$), but heart rate was greater over time in the norepinephrine group *versus* the phenylephrine group ($P = 0.039$).

Int J Clin Exp Med 2017;10(8):12315-12321
www.ijcem.com /ISSN:1940-5901/IJCEM0057154

Original Article

Comparison of prophylactic bolus norepinephrine and phenylephrine on hypotension during spinal anesthesia for cesarean section

Ling Dong[1], Qian Dong[2], Xiumei Song[1], Yang Liu[1], Yuelan Wang[1]

[1]Department of Anesthesiology, Qianfoshan Hospital, Shandong University, Jinan, Shandong, China; [2]Department of Marketing, Qilu Clinical Laboratory Company, Jinan, Shandong, China

Table 3. Adverse effects

	Norepinephrine group (n = 62)	Phenylephrine group (n = 64)	*P* value
Hypertension	2 (3%)	3 (5%)	0.68
Bradycardia	1 (2%)	8 (13%)	0.02
Rescue vasopressor required	3 (5%)	5 (8%)	0.5
Nausea	2 (3%)	3 (5%)	0.68
Vomiting	0	0	

Values are numbers (%).

Table 2. Neonatal outcomes

	Norepinephrine group (n = 62)	Phenylephrine group (n = 64)	*P* value
Apgar scores < 8 at 1 min	0	0	
Apgar scores < 8 at 5 min	0	0	
Umbilical arterial blood gas values			
PH	7.31 (7.28-7.32)	7.29 (7.28-7.31)	0.49
PO_2, kPa	16 (14-22)	15 (13-20)	0.33
PCO_2, kPa	49 (46-55)	50 (47-54)	0.64
Base excess, mmol/l	-1.9 (-3.2 to -0.6)	-2.3 (-4.1 to -0.5)	0.79
Lactate, mmol/l	2.4 (2.0-2.6)	2.2 (1.8-2.4)	0.25
Umbilical venous blood gas values			
PH	7.34 (7.33-7.36)	7.33 (7.21-7.35)	0.21
PO_2, kPa	30 (26-33)	28 (25-31)	0.42
PCO_2, kPa	43 (40-45)	44 (41-46)	0.69
Base excess, mmol/l	-1.4 (-2.2 to -0.5)	-1.6 (-2.4 to -0.7)	0.28
Lactate (mmol/l)	2.3 (1.9-2.5)	2.2 (1.6-2.4)	0.09

Values are numbers or medians (interquartile range).

Norepinephrine Intermittent Intravenous Boluses to Prevent Hypotension During Spinal Anesthesia for Cesarean Delivery: A Sequential Allocation Dose-Finding Study

Desire N. Onwochei, MBBS BSc (Hons), FRCA,* Warwick D. Ngan Kee, MBChB, MD, FANZCA, FHKCA,† Lillia Fung, MD, FRCPC,* Kristi Downey, MSc,* Xiang Y. Ye, MSc,‡ and Jose C. A. Carvalho, MD, PhD, FANZCA, FRCPC*

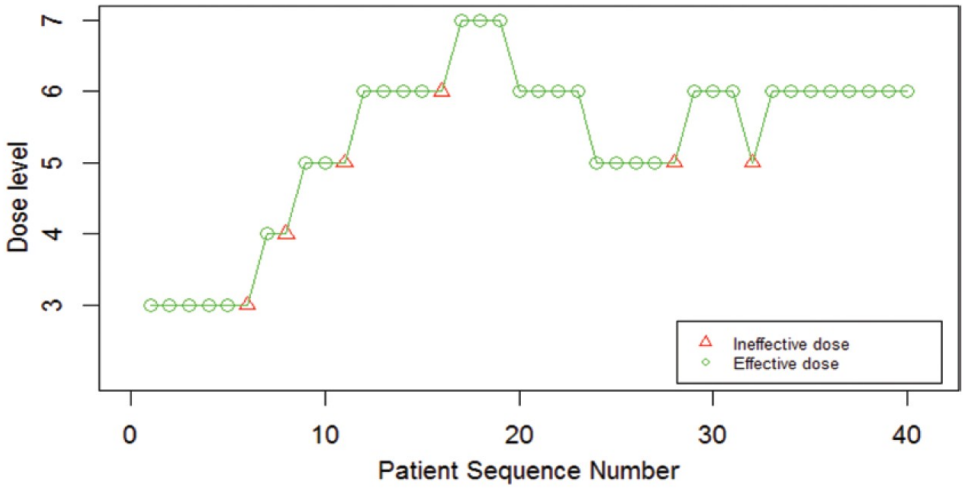


Figure 2. The patient allocation sequence and the response to the assigned dose. The patient sequence number (x-axis) is the order of patient exposures using the biased coin up-and-down (BCUD) design. The assigned dose levels (y-axis) are 3, 4, 5, 6, 7, and 8 μg. An effective dose is denoted by a circle, while an ineffective one is denoted by a triangle.

Table 2. Observed and PAVA-Adjusted Response Rates

Assigned Dose (μg)	Number of Successes	Number of Patients	Observed Response Rate (%)	PAVA-adjusted Response Rate (%)
3	5	6	0.83	0.706
4	1	2	0.50	0.706
5	6	9	0.67	0.706
6	19	20	0.95	0.95
7	3	3	1	1

PAVA-adjusted response rates were estimated using the weighted isotonic regression method.
Abbreviation: PAVA, pooled-adjacent-violators algorithm.

Effect of labor analgesia on labor outcome

Stephen H. Halpern and Faraj W. Abdallah

University of Toronto and Sunnybrook Health Sciences Centre, Division of Obstetrical Anesthesia, Toronto, Canada

Correspondence to Stephen Halpern, MD, MSc, FRCPC, Division Head, Obstetrical Anesthesia, Sunnybrook Health Sciences Centre, Women's College Campus, 76 Grenville Street, Toronto, Ontario, M5S1B2 Canada
Tel: +1 416 323 6269; fax: +1 416 323 2666;
e-mail: Stephen.Halpern@sunnybrook.ca

Current Opinion in Anaesthesiology 2010, 23:317–322

Purpose of review

Labor is among the most painful experiences that humans encounter. Neuraxial analgesia is the most effective means of treating this pain. In this review, we discussed the effect of neuraxial analgesia on the progress of labor when compared with parenteral opioids. We then compared initiation of analgesia with a combined spinal–epidural technique (CSE) to conventional epidural analgesia. Finally we discussed the impact of neuraxial analgesia, given early in labor, compared with later administration.

Recent findings

Compared with parenteral opioids, neuraxial analgesia does not increase the incidence of cesarean section, although it is associated with a longer (~16 min) second stage of labor. The incidence of operative vaginal delivery is higher in the epidural group but this may be due to indirect reasons such as changes in physician behavior. There was no difference in labor outcome when CSE was compared with low-concentration epidural analgesia, but higher concentrations may prolong labor. Early administration of neuraxial analgesia does not increase the incidence of operative delivery or prolong labor.

Summary

Neuraxial analgesia does not interfere with the progress or outcome of labor. There is no need to withhold neuraxial analgesia until the active stage of labor.

Keywords

analgesia, cesarean section, combined spinal–epidural, epidural, labor pain, progress of labor

Curr Opin Anaesthesiol 23:317–322

0952-7907

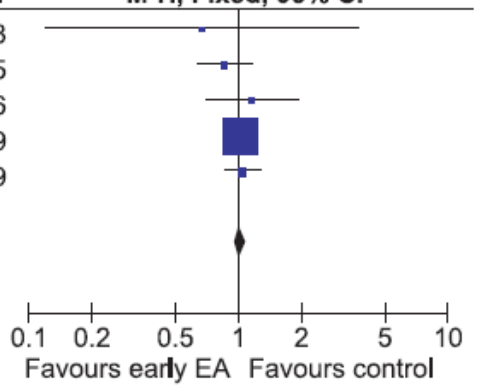
Early versus late epidural analgesia and risk of instrumental delivery in nulliparous women: a systematic review

MMLH Wassen,[a] J Zuijlen,[b] FJME Roumen,[c] LJM Smits,[d] MA Marcus,[e] JG Nijhuis[a]

Study or subgroup	Favours early EA Events	Total	Control Events	Total	Weight	Risk ratio M-H, Fixed, 95% CI	Year
Luxman 1998	2	30	3	30	0.2%	0.67 [0.12, 3.71]	1998
Wong 2005	65	366	75	362	4.5%	0.86 [0.64, 1.16]	2005
Ohel 2006	28	221	25	228	1.5%	1.16 [0.70, 1.92]	2006
Wang 2009	1486	6394	1456	6399	86.4%	1.02 [0.96, 1.09]	2009
Wong 2009	134	406	126	400	7.5%	1.05 [0.86, 1.28]	2009
Total (95% CI)		**7417**		**7419**	**100.0%**	**1.02 [0.96, 1.08]**	
Total events	1715		1685				

Heterogeneity: Chi² = 1.84, df = 4 (P = 0.77); I^2 = 0%

Test for overall effect: Z = 0.57 (P = 0.57)



Bupivacaine 0.125%

Bupivacaine 0.25%

Bupivacaine 0.5%

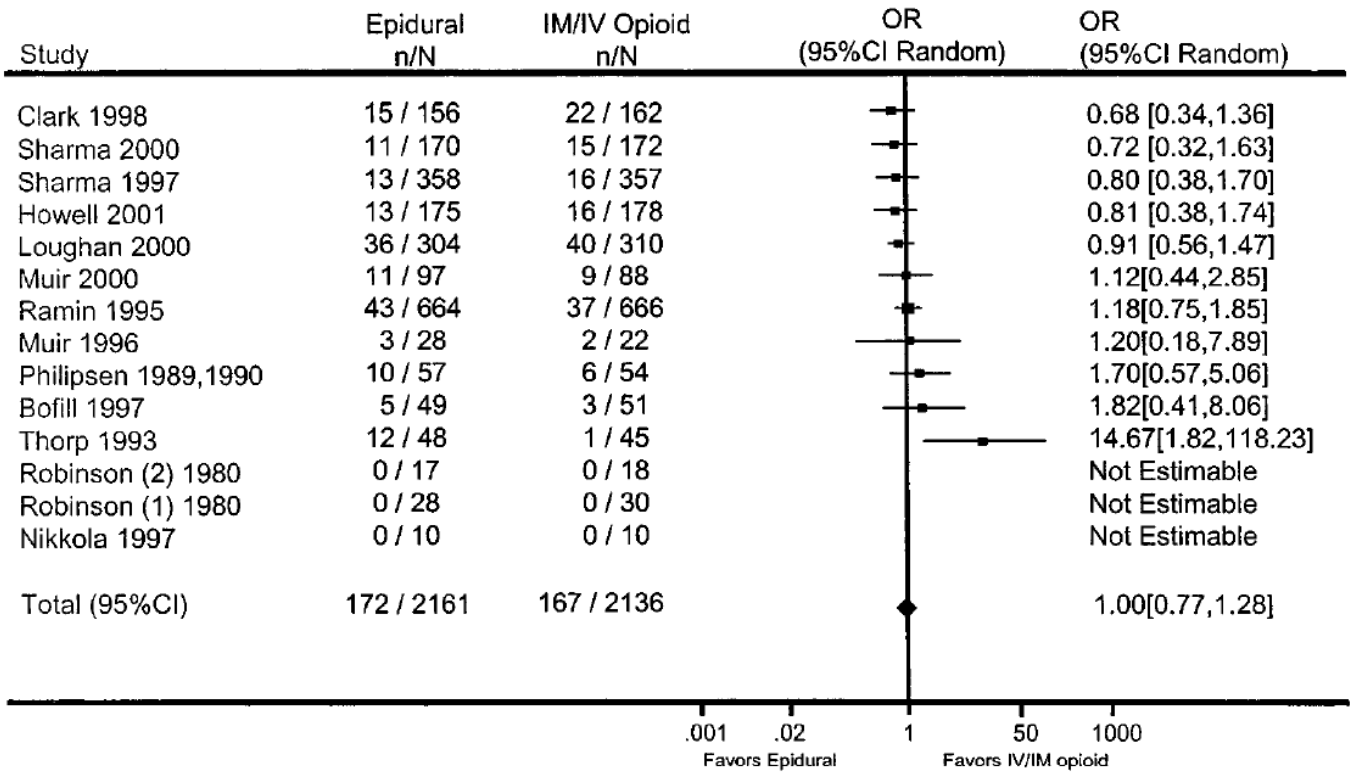


Figure. Overall cesarean delivery rate for each randomized study. Individual and pooled *(total)* odds ratios *(OR)* and 95% confidence intervals *(CI)* are shown. Odds ratios were not estimable for the 3 studies with no cesarean deliveries. Each box is centered at the point estimate of the OR and is proportional in size to the number of patients in the study. The *bars* indicate 95% CIs. The *center of the diamond* represents the point estimate of the pooled OR, and the *length of the diamond* is proportional to the pooled 95% CI.

Leighton BL et al. Am J Obstet Gynecol 2002;186:S69-77

IRSKO

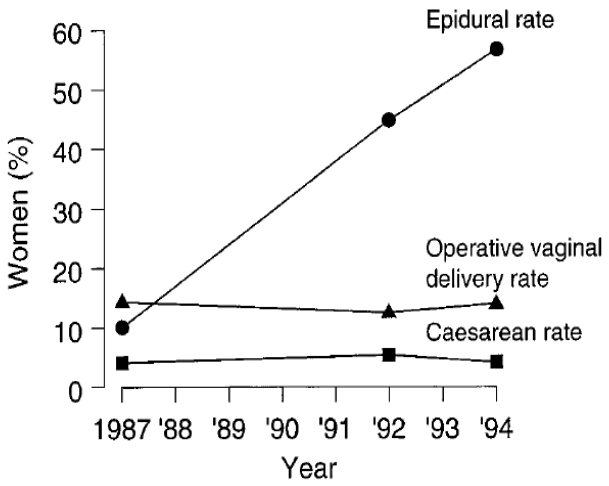


Fig 1. Epidural analgesia and cesarean and instrumental vaginal delivery rates of 1000 consecutive nulliparous women in spontaneous labor at term in 3 different years.

Table I. Demographic details of 1000 consecutive nulliparous women in each of 3 different years

	1987	*1992*	*1994*	*Statistical significance*
Maternal age (y, mean)	24.9	25.3	26.3	$f = 17.4$; $P < .001$*
Gestation (wk, mean)	40.0	39.8	40.1	NS*
Height (cm, mean)	162.9	163.3	163.3	NS*
Weight (kg, mean)	71.1	71.7	74.2	$f = 26.5$; $P < .001$*
Fetal birth weight (kg, mean)	3.47	3.47	3.53	$f = 57.8$; $P < .01$*

NS, Not significant.
*Determined by one-way analysis of variance.

Impey L et al. Am J Obstet Gynecol 2000;182:358-63

USA

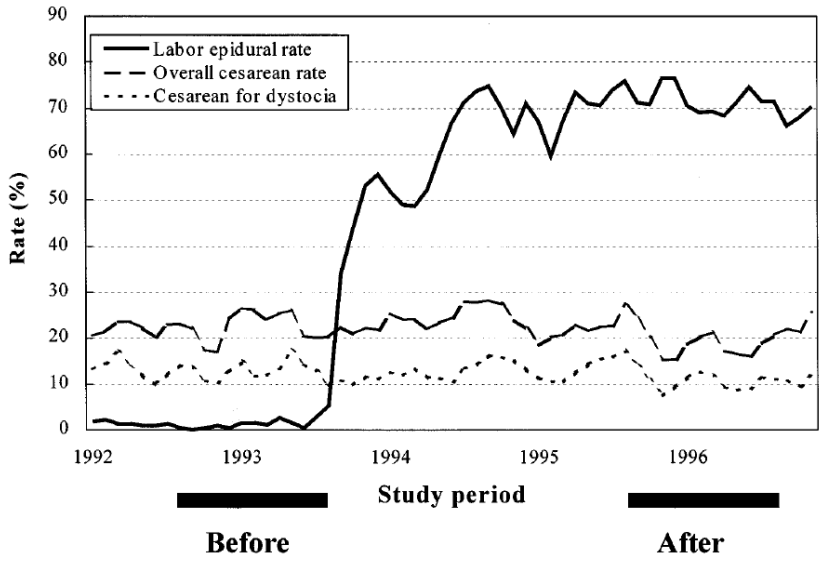


Fig 1. Epidural analgesia use during labor and cesarean delivery rates both overall and for dystocia among nulliparous women, 1992-1996.

Zhang J, Yancey MK et al. Am J Obstet Gynecol 2001;185:128-34

jan.blaha@vfn.cz