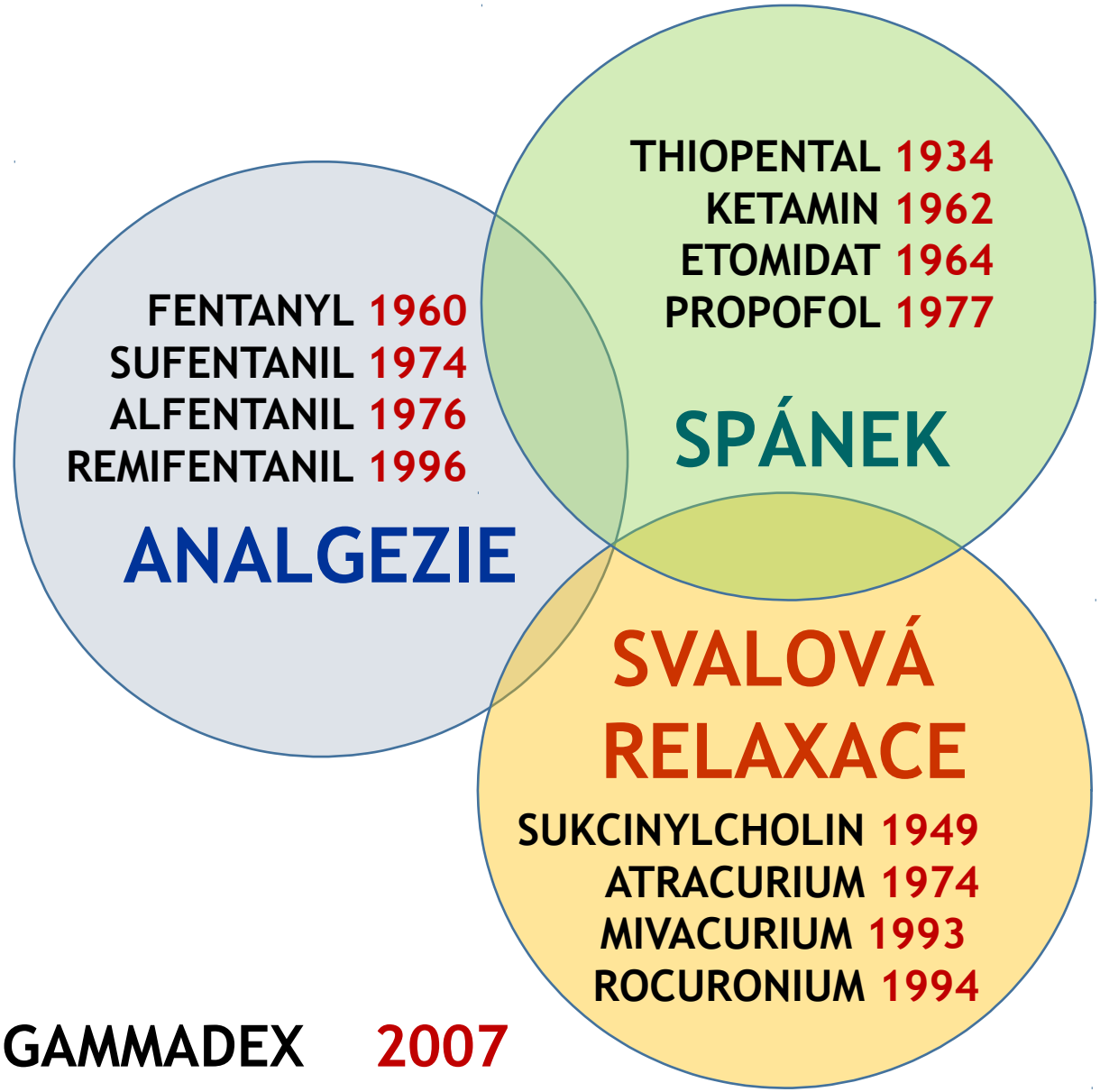
JAN BLÁHA

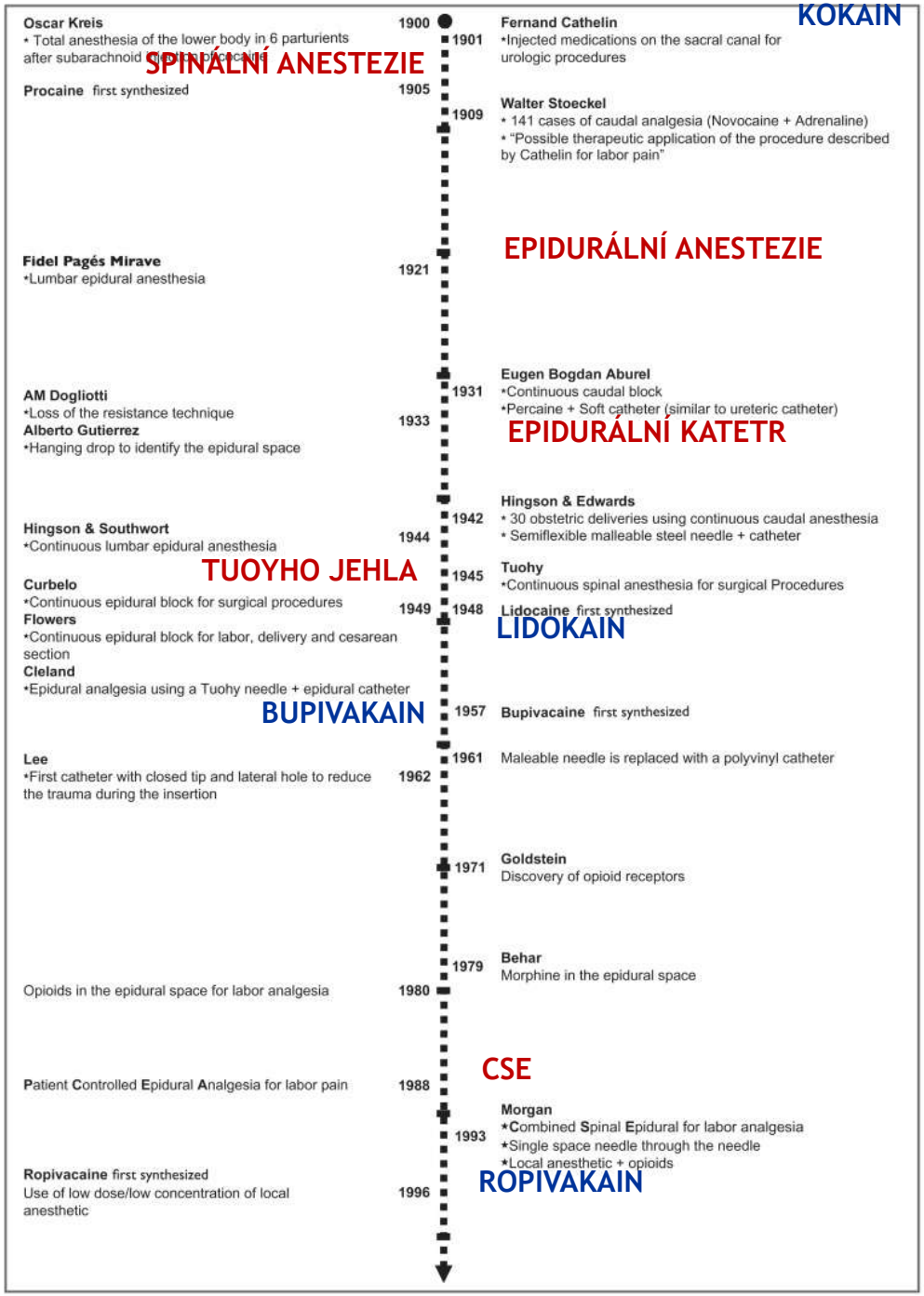
Klinika anesteziologie, resuscitace a intenzivní medicíny
1. lékařská fakulta Univerzity Karlovy
Všeobecná fakultní nemocnice v Praze

O ČEM SE (LETOS) MLUVÍ...

jan.blaha@vfn.cz



SUGAMMADEX 2007



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

KARIM

LONDON SCHOOL of HYGIENE &TROPICAL MEDICINE

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21 RECRUITING COUNTRIES

200 SITES RECRUITED

DIAGNOSTIKA A LÉČBA PERIPARTÁLNÍHO ŽIVOT OHROŽUJÍCÍHO KRVÁCENÍ

ČESKO-SLOVENSKÝ MEZIOBOROVÝ DOPORUČENÝ POSTUP

Pařízek A.[1], Binder T.[2], Bláha J.[3], Blatný J.[4], Buršík M.[5], Feyereisl J.[6], Janků P.[7], Kokrdová Z.[1], Křepelka P.[6], Kvasnička J.[8], Ľubuský M.[9], Seidlová D.[10], Šimetka O.[11], Štourač P.[12], Černý V.[13, 14, 15, 16]

1) Gynekologicko-porodnická klinika 1. lékařské fakulty UK a VFN v Praze, Česká republika
2) Gynekologicko - porodnická klinika, Univerzita J. E. Purkyně v Ústí nad Labem, Masarykova nemocnice v Ústí nad Labem, Česká republika
3) Klinika anesteziologie, resuscitace a intenzivní medicíny 1. LF UK a VFN v Praze, Česká republika
4) Oddělení dětské hematologie, Centrum pro trombózu a hemostázu, FN Brno, LF MU Brno, Česká republika
5) Klinika anesteziológie a intenzívnej medicíny, Univerzitná nemocnica Bratislava - Ruž[illegible], Slovenská republika
6) Ústav péče o matku a dítě, Praha, Česká republika
7) Gynekologicko-porodnická klinika, Fakultní nemocnice Brno, Léka[illegible]kulta Masary[illegible] univerzity, Brno, Česká republika
8) Trombotické centrum, Ústav lékařské biochemie a laborato[illegible]diag[illegible]stik[illegible]FN v Praze
9) Porodnicko-gynekologická klinika, Univerzita Pa[illegible]ho O[illegible]ouc, Lé[illegible]a, Fakultní nemocnice Olomouc, Česká republika
10) II. ARO, Klinika anesteziologie, resu[illegible]nte[illegible]di[illegible]ultní nemocnice Brno, Lékařská fakulta Masarykovy u[illegible]zity, B[illegible], Če[illegible]á
11) Gynekologicko - porod[illegible]á klini[illegible]Léka[illegible]e faku[illegible]Univerzity Ostrava a FN Ostrava, Česká republika
12) Klinika dětské [illegible]ziolo[illegible]a resus[illegible]ultní nemocnice Brno, Lékařská fakulta Masaryk[illegible]v un[illegible]Br[illegible]Čes[illegible]ublika
13) [illegible]ka a[illegible]ezi[illegible]o[illegible]ic[illegible], a intenzivní medicíny, Univerzita J. E. Purkyně v Ústí nad [illegible], Ma[illegible]yk[illegible]e[illegible]ce v Ústí nad Labem, Institut postgraduálního vzdělávání ve zdr[illegible]nictv[illegible]a, Česká republika
14) Centr[illegible]výzkum a vývoj, Fakultní nemocnice Hradec Králové, Česká republika
15) [illegible]klinika[illegible]esteziologie, resuscitace a intenzivní medicíny, Univerzita Karlova v Praze, Lékařská fakulta v Hradci Králové, Česká republika
16) Dept. of Anesthesia, Pain Management and Perioperative Medicine, Dalhousie University, Halifax, Canada

1. Úvod

V předloženém dokumentu jsou formulována doporučení pro diagnostický a léčebný postup u pacientek s rozvojem život ohrožujícího krvácení v souvislosti s těhotenstvím a/nebo porodem se zaměřením na tzv. peripartální život ohrožující krvácení. Jednotlivá doporučení vycházejí z dostupných publikovaných odborných zdrojů k dané problematice a názorů členů pracovní skupiny, včetně externích oponentů. Implementace v textu formulovaných doporučení musí být vždy zvažována v aktuálním klinickém kontextu a z pohledu poměru přínosu a rizika jednotlivých konkrétních postupů. Dokument nenahrazuje základní odborné zdroje dané problematiky a neuvádí povinnosti zdravotnických pracovníků určené zákonnými normami.

EJA

Eur J Anaesthesiol 2017; **34:**332–395

KARIM

GUIDELINES

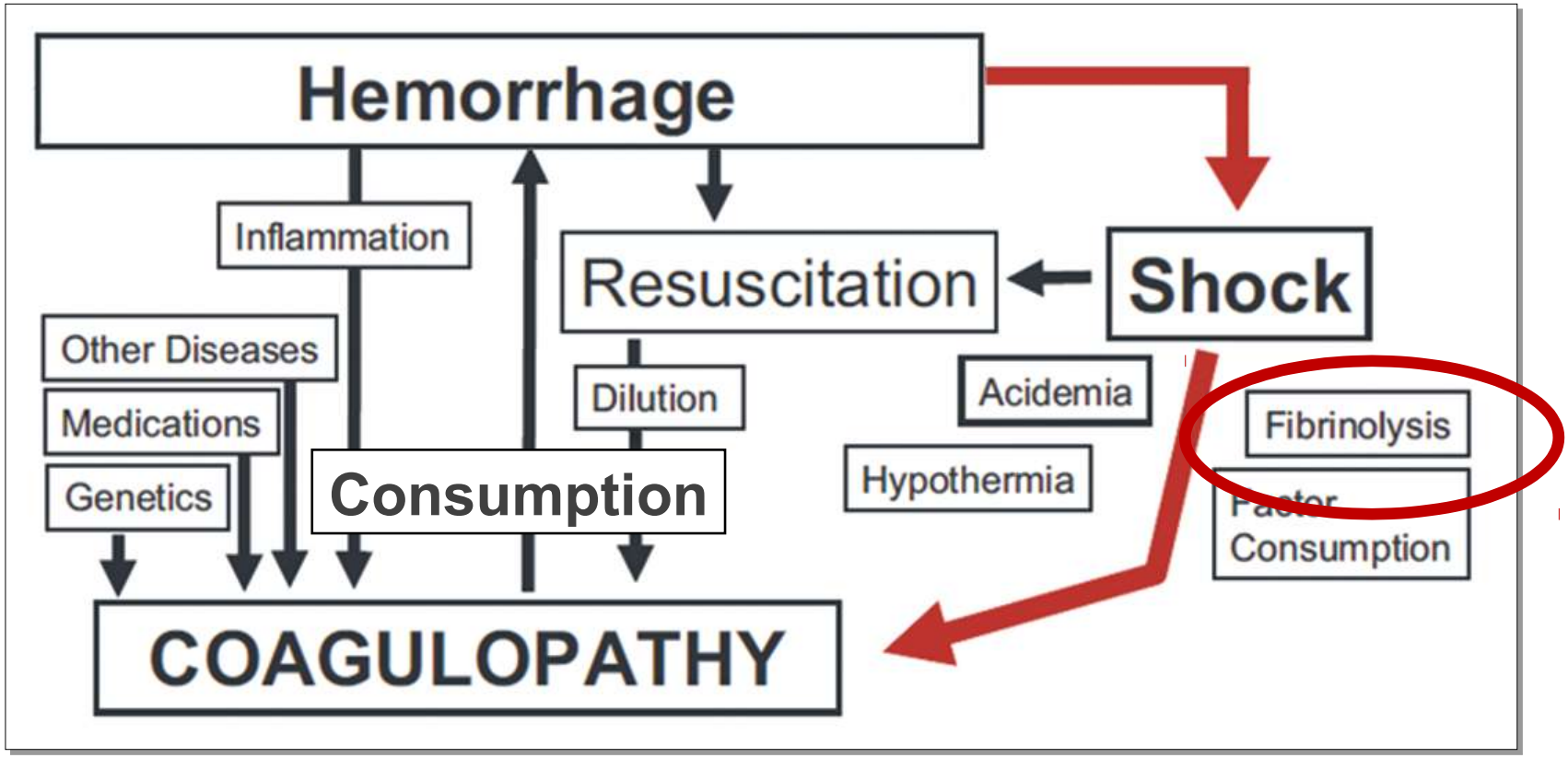
Management of severe perioperative bleeding: guidelines from the European Society of Anaesthesiology

First update 2016

Sibylle A. Kozek-Langenecker, Aamer B. Ahmed, Arash Afshari, Pierre Albaladejo, Cesar Aldecoa, Guidrius Barauskas, Edoardo De Robertis, David Faraoni, Daniela C. Filipescu, Dietmar Fries, Thorsten Haas, Matthias Jacob, Marcus D. Lancé, Juan V.L. Pitarch, Susan Mallett, Jens Meier, Zsolt L. Molnar, Niels Rahe-Meyer, Charles M. Samama, Jakob Stensballe, Philippe J.F. Van der Linden, Anne J. Wikkelsø, Patrick Wouters, Piet Wyffels and Kai Zacharowski

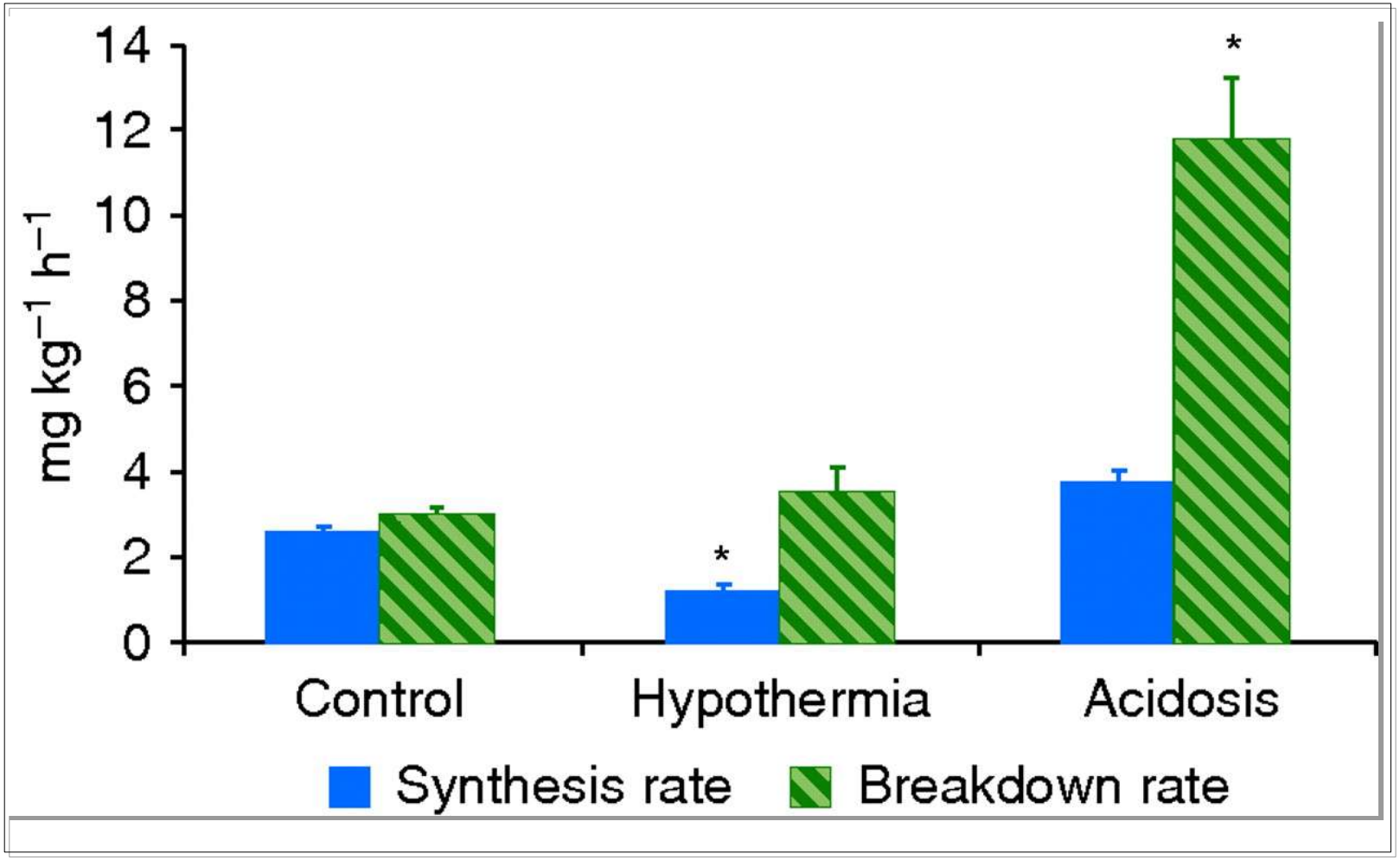
1.7. General coagulation management

We suggest assessing fibrinogen levels in parturients with bleeding, as levels less than 2 g l^{-1} may identify those at risk of severe PPH. **2B**



Adaptováno z Hess et al. J Trauma. 2008;65:748-54

Changes in fibrinogen synthesis and breakdown in pigs after haemorrhage, hypothermia, and acidosis.



Fries D , and Martini WZ. Br. J. Anaesth. 2010;105:116-121

Effect of early tranexamic acid administration on mortality, hysterectomy, and other morbidities in women with post-partum haemorrhage (WOMAN): an international, randomised, double-blind, placebo-controlled trial

Published Online
April 26, 2017
http://dx.doi.org/10.1016/
S0140-6736(17)30638-4

*WOMAN Trial Collaborators**

Summary

Background Post-partum haemorrhage is the leading cause of maternal death worldwide. Early administration of tranexamic acid reduces deaths due to bleeding in trauma patients. We aimed to assess the effects of early administration of tranexamic acid on death, hysterectomy, and other relevant outcomes in women with post-partum haemorrhage.

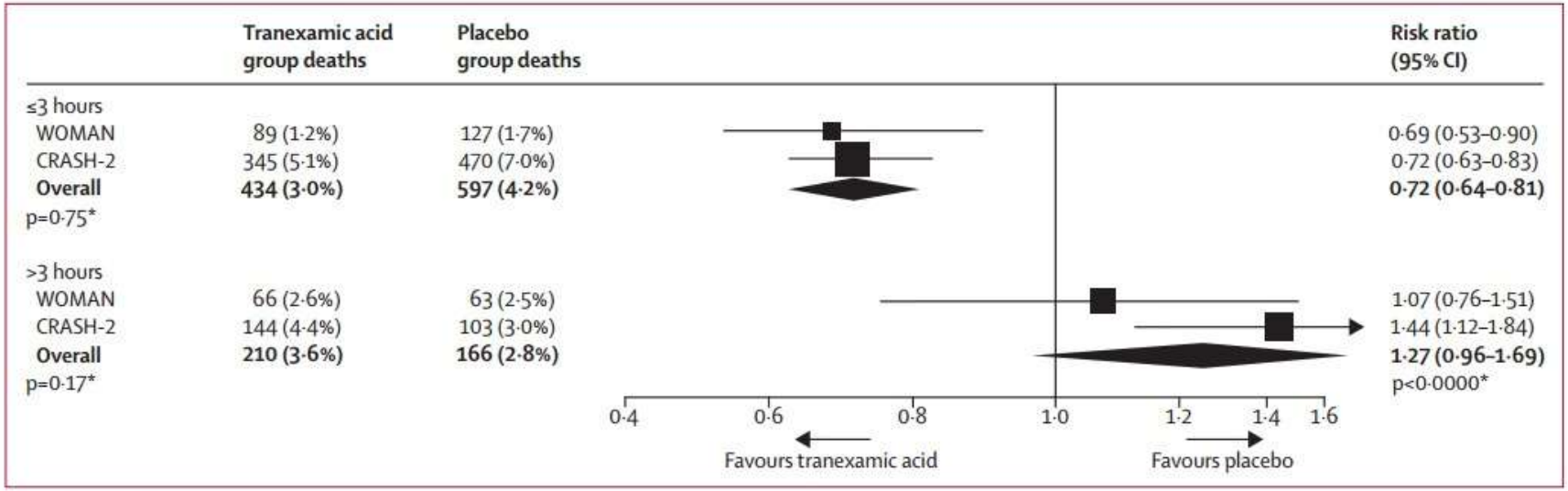


Figure 5: **Time to treatment**
*Heterogeneity p value.

Interpretation Tranexamic acid reduces death due to bleeding in women with post-partum haemorrhage with no adverse effects. When used as a treatment for postpartum haemorrhage, tranexamic acid should be given as soon as possible after bleeding onset.

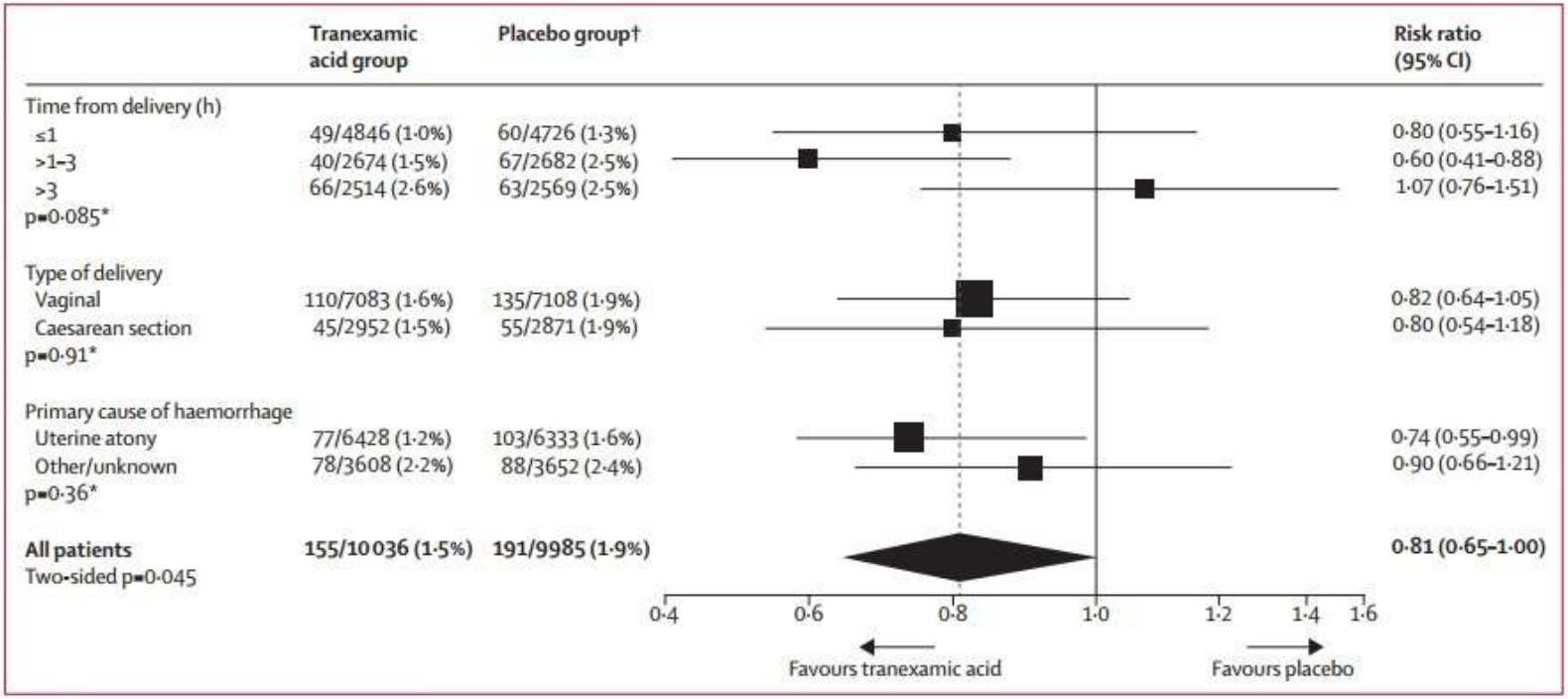
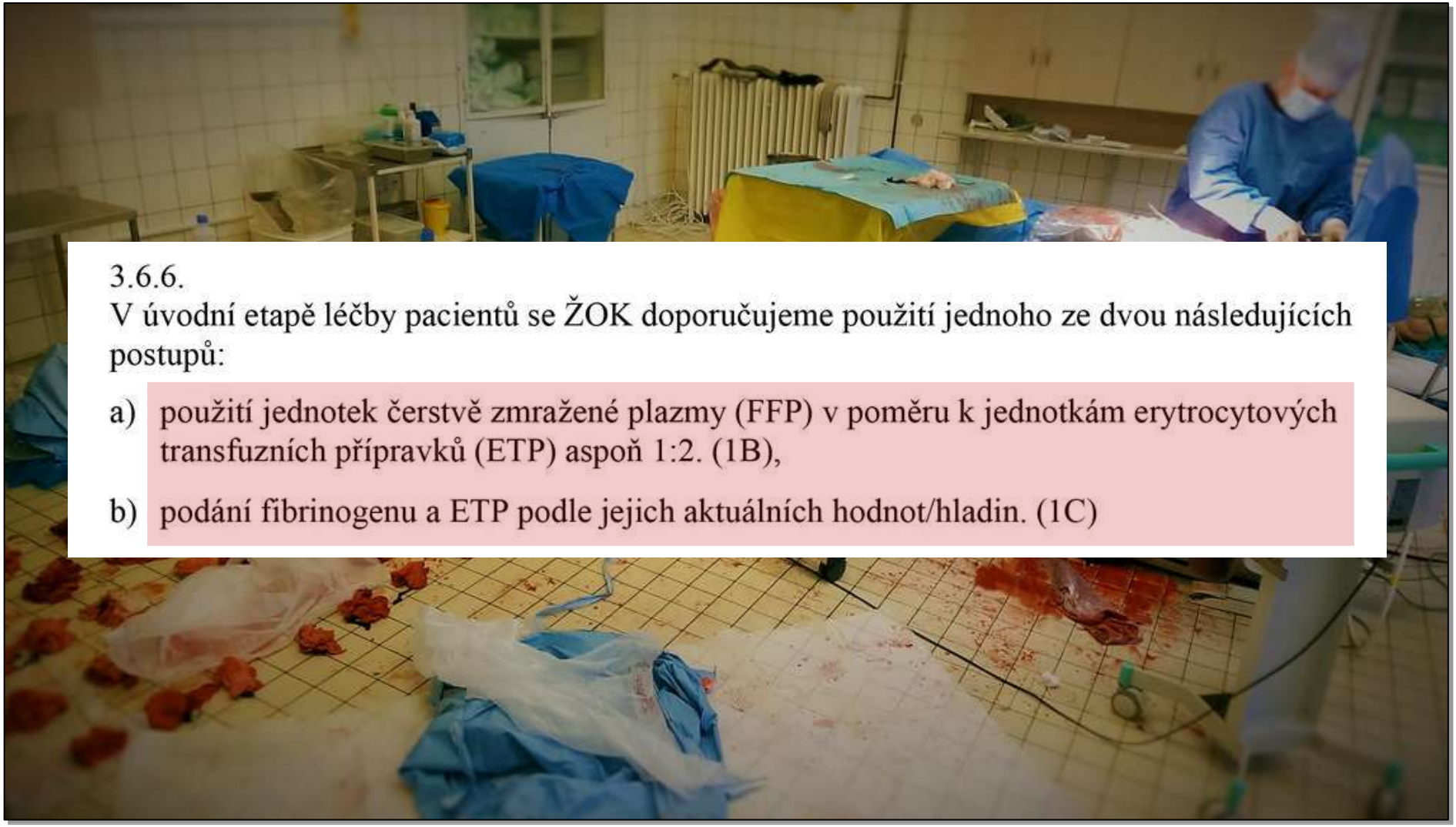


Figure 3: **Death from bleeding by subgroup**

*Heterogeneity p value. †One patient excluded from subgroup analysis because of missing baseline data.



3.6.6.
V úvodní etapě léčby pacientů se ŽOK doporučujeme použití jednoho ze dvou následujících postupů:

a) použití jednotek čerstvě zmražené plazmy (FFP) v poměru k jednotkám erytrocytových transfuzních přípravků (ETP) aspoň 1:2. (1B),

b) podání fibrinogenu a ETP podle jejich aktuálních hodnot/hladin. (1C)


PLASMA
A


PLASMA
A
Rh POSITIVE
VOLUNTEER DONOR

35 minut

=

8 minut

EJA

Eur J Anaesthesiol 2017; **34**:332–395

GUIDELINES

1.7. General coagulation management

Fibrinogen concentration of less than 1.5 to 2 g l^{-1} is considered as hypofibrinogenaemia in acquired coagulopathy and is associated with increased bleeding risk. **1C**

We suggest an initial fibrinogen concentrate dose of 25 to 50 mg kg^{-1}. **2C**

Plasma transfusion alone is not sufficient to correct hypofibrinogenaemia. **C**

National audit of the use of fibrinogen concentrate to correct hypofibrinogenaemia

N. D. Gollop,[1] J. Chilcott,[2] A. Benton,[3] R. Rayment,[2] J. Jones[4] & P. W. Collins[2]

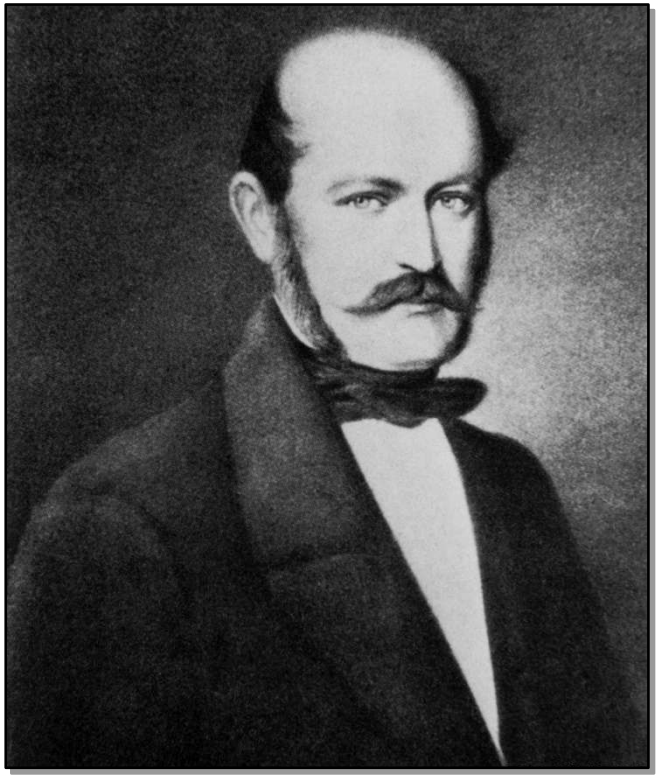
[1]The School of Medicine, [2]Department of Haematology, University Hospital of Wales and School of Medicine, Cardiff University Cardiff, [3]Department of Haematology, Singleton Hospital, Swansea University Swansea, and [4]Welsh Blood Service Cardiff UK

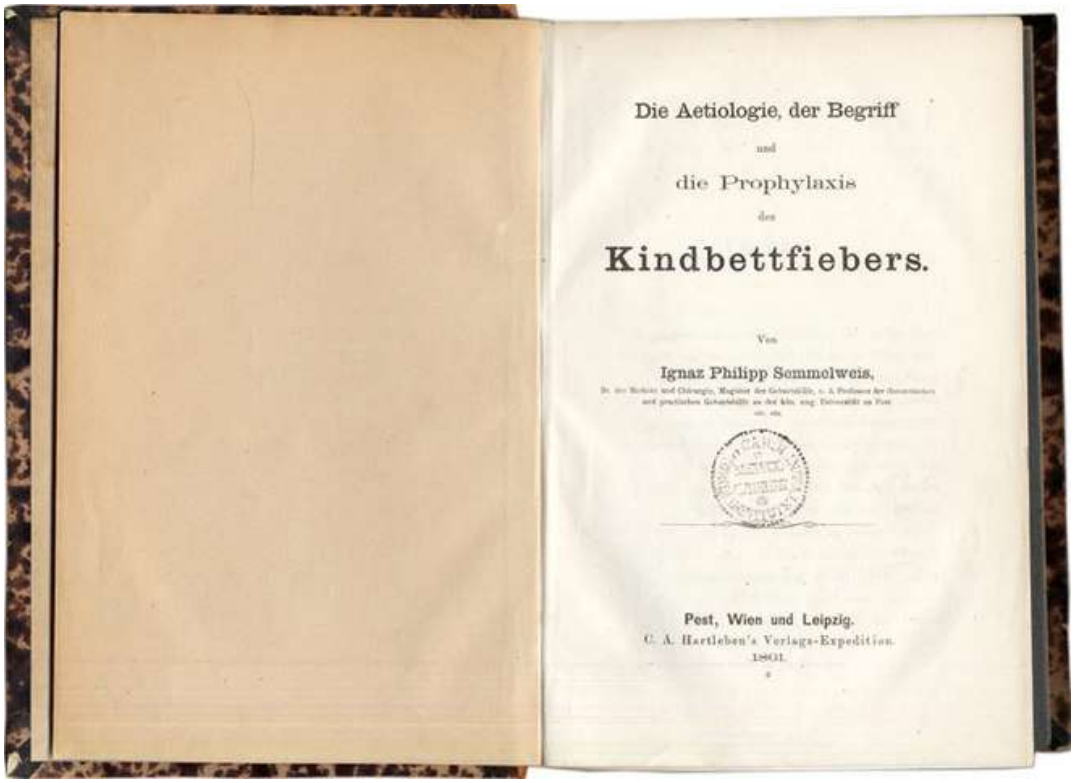
Table 2. Effect of fibrinogen infusion on fibrinogen levels

	Fibrinogen ($g\,L^{-1}$) before infusion	Fibrinogen ($g\,L^{-1}$) after infusion	Absolute increment in fibrinogen ($g\,L^{-1}$)	Adjusted increment in fibrinogen ($g\,L^{-1}$ increase per $mg\,kg^{-1}$ infused)
Bleeding patients ($n = 46$)	1·0 (0·7–1·3) 0·4–3·4	2 (1·4–2·4) 0·5–4·3	0·9 (0·5–1·3) −0·6 to 2·6	0·02 (0·01–0·03) −0·01 to 0·1
Non-bleeding patients ($n = 17$)	0·9 (0·5–1·2) 0·3–1·7	1·7 (1·3–2·5) 0·9–3·7	0·8 (0·6–1·5) 0·1–3·2	0·02 (0·01–0·03) 0–0·08

Fibrinogen levels and observed increment are shown. Data are median, (IQR) and range.

pro zvýšení o 1 g/l
je nutná dávka
60 mg/kg





Die Aetiologie, der Begriff

und

die Prophylaxis

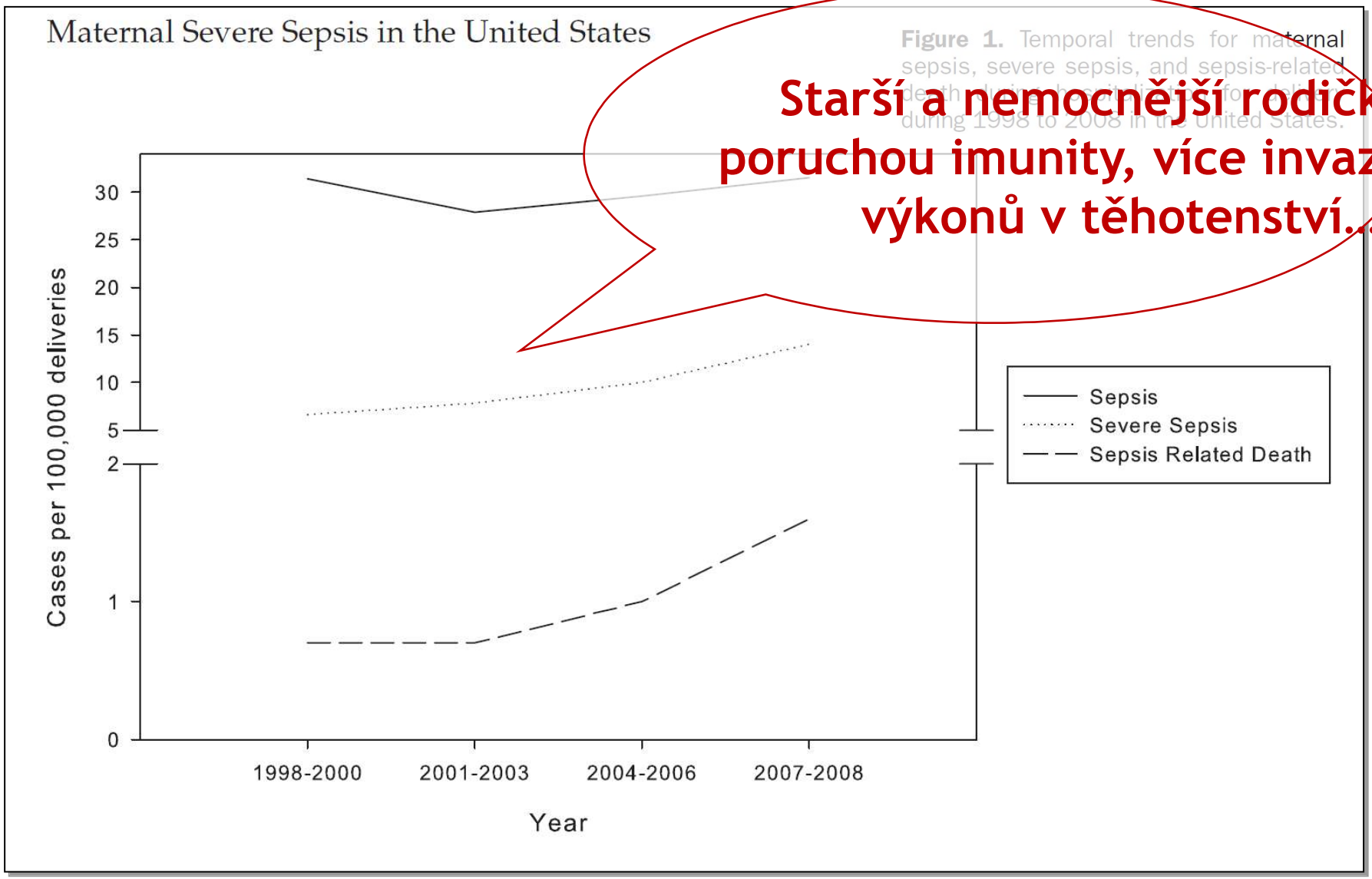
des

Kindbettfiebers.

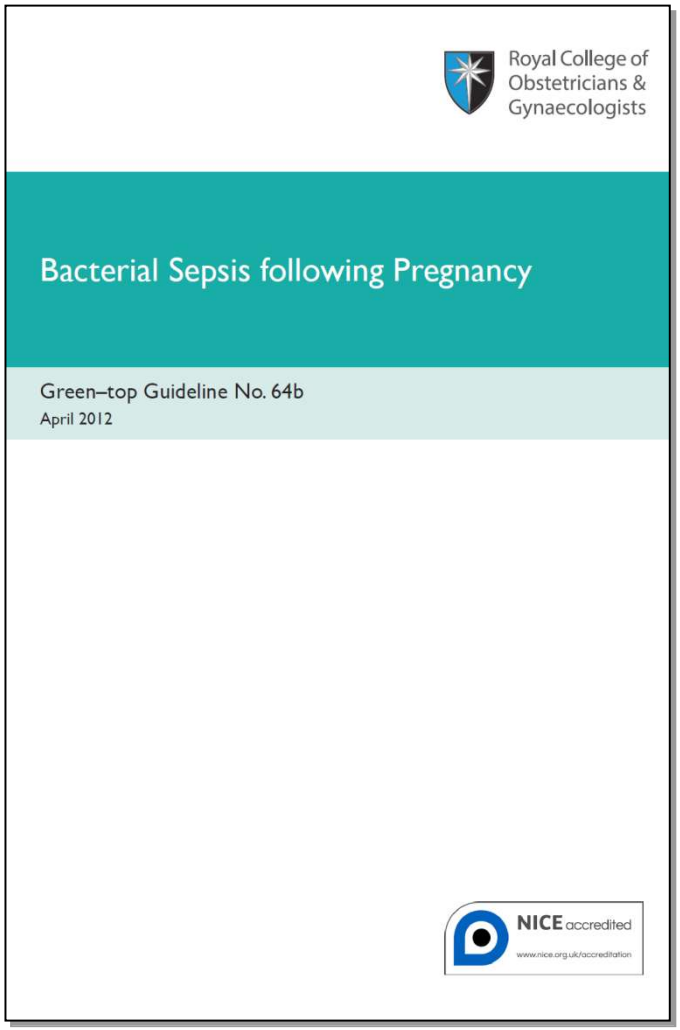
Von

Ignaz Philipp Semmelweis,

Pest, Wien und Leipzig.
C. A. Hartleben's Verlags-Expedition.
1861.



Bauer et al. Anesthesia & Analgesia 2013; 117(4):944-950



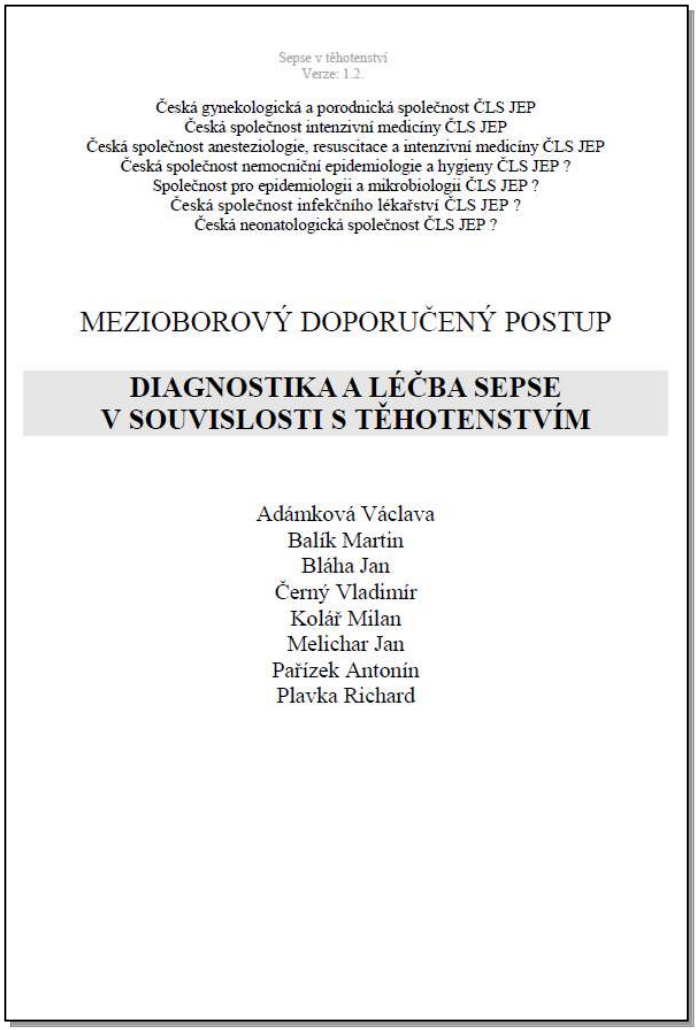
Royal College of Obstetricians & Gynaecologists

Bacterial Sepsis following Pregnancy

Green–top Guideline No. 64b

April 2012

NICE accredited
www.nice.org.uk/accreditation



Sepse v těhotenství
Verze: 1.2.

Česká gynekologická a porodnická společnost ČLS JEP
Česká společnost intenzivní medicíny ČLS JEP
Česká společnost anesteziologie, resuscitace a intenzivní medicíny ČLS JEP
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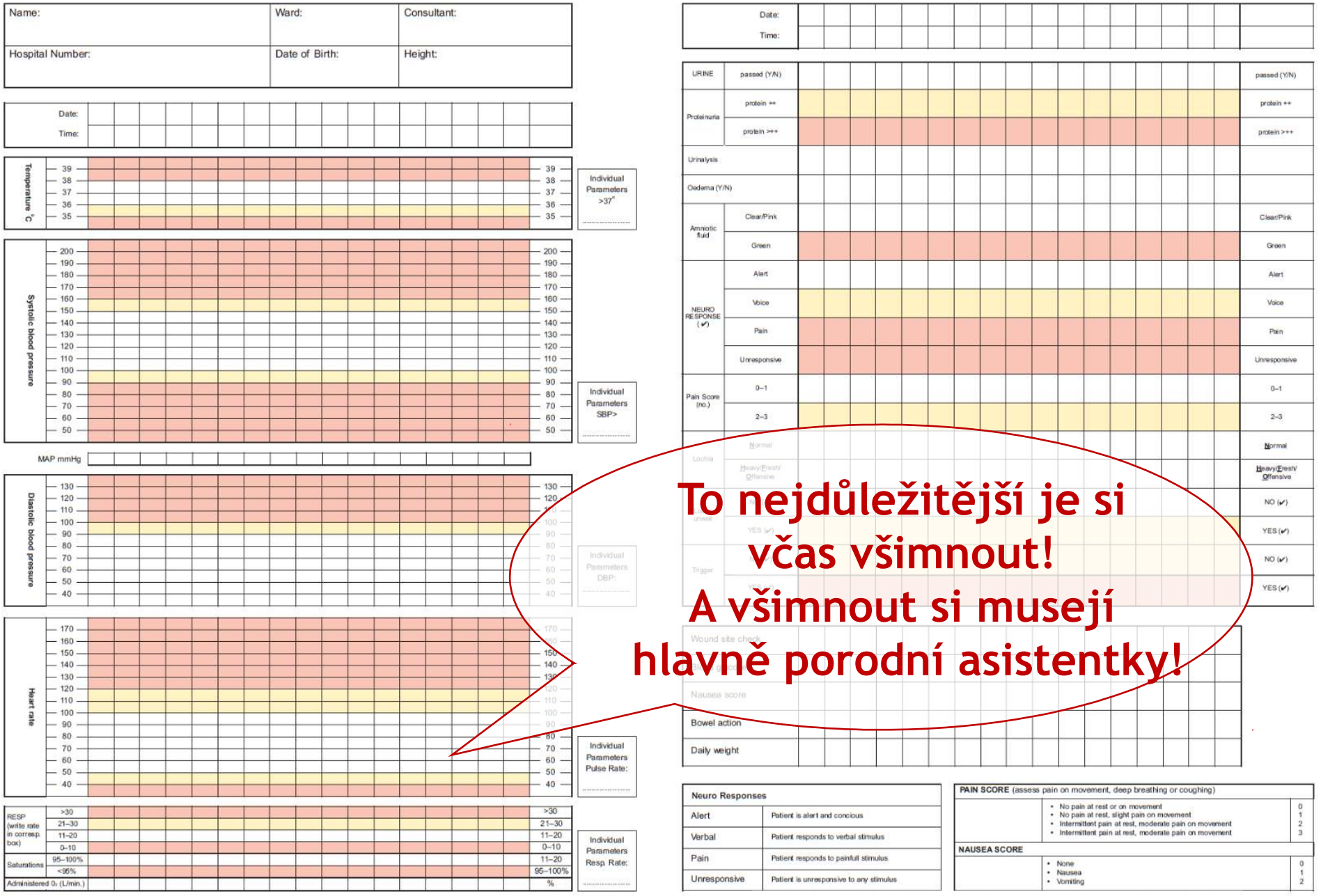
Společnost pro epidemiologii a mikrobiologii ČLS JEP ?
Česká společnost infekčního lékařství ČLS JEP ?
Česká neonatologická společnost ČLS JEP ?

MEZIOBOROVÝ DOPORUČENÝ POSTUP

DIAGNOSTIKA A LÉČBA SEPSE V SOUVISLOSTI S TĚHOTENSTVÍM

Adámková Václava
Balík Martin
Bláha Jan
Černý Vladimír
Kolář Milan
Melichar Jan
Pařízek Antonín
Plavka Richard



The MEOWS observation chart.

Singh S et al. Anaesthesia *2012*; *67*: *12–8*

Original Article

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

A validation study of the CEMACH recommended modified early obstetric warning system (MEOWS)*

S. Singh,[1] A. McGlennan,[2] A. England[2] and R. Simons[2]

1 Consultant Anaesthetist, Barnet Hospital, Herts, UK. 2 Consultant Anaesthetist, Royal Free Hospital, London, UK

The MEOWS was 89% sensitive, 79% specific,

with a positive predictive value 39% and a negative predictive value of 98%.

Singh S et al. Anaesthesia *2012*; *67*: *12–8*

International Journal of Obstetric Anesthesia (2013) **22**, 124–128
0959-289X/$ - see front matter
http://dx.doi.org/10.1016/j.ijoa.2012.12.005

CrossMark

ELSEVIER
www.obstetanesthesia.com

ORIGINAL ARTICLE

A comparison of the haemodynamic effects of lateral and sitting positions during induction of spinal anaesthesia for caesarean section

B.I. Obasuyi, S. Fyneface-Ogan, C.N. Mato
Department of [illegible]esia, University of Port Harcourt Teaching Hospital, Port Har[illegible]

ABSTRAC
Background: [illegible]n during spinal anaesthesia occurs commonly in parturients. [illegible]ocal anaesthetic, maternal [illegible]e speed of onset of sensory block and thus the haemody[illegible] this study was to dete[illegible]hesia for caesarean section using plain bupiva[illegible]ould result in [illegible]osition.
[illegible] Anesthesiologists physical status I and [illegible]e caesarean [illegible] the lateral position (Grou[illegible]p S). Using the L3[illegible]cal plain bupivacaine, 10 mg o[illegible]heig[illegible] which they were pl[illegible]ith left uterine displacem[illegible]s me[illegible]very minute for 10 [illegible]reafter. Hyp[illegible]stolic bl[illegible]ressure >20%
[illegible]o difference in the [illegible]olic blood pr[illegible].2 ± 8.9 mm[illegible]d with [illegible]owest recorded mean [illegible]ressure was g[illegible]p L [illegible] than in Group S (68.2 [illegible]; $P = 0.025$). The incid[illegible]otension was [illegible]p L [illegible]of hypotension wa[illegible]ups.
[illegible]sthesia for c[illegible]ivacaine was [illegible]duced with [illegible]or the low[illegible]al pressure we[illegible] greater but va[illegible]similar for p[illegible]on group.

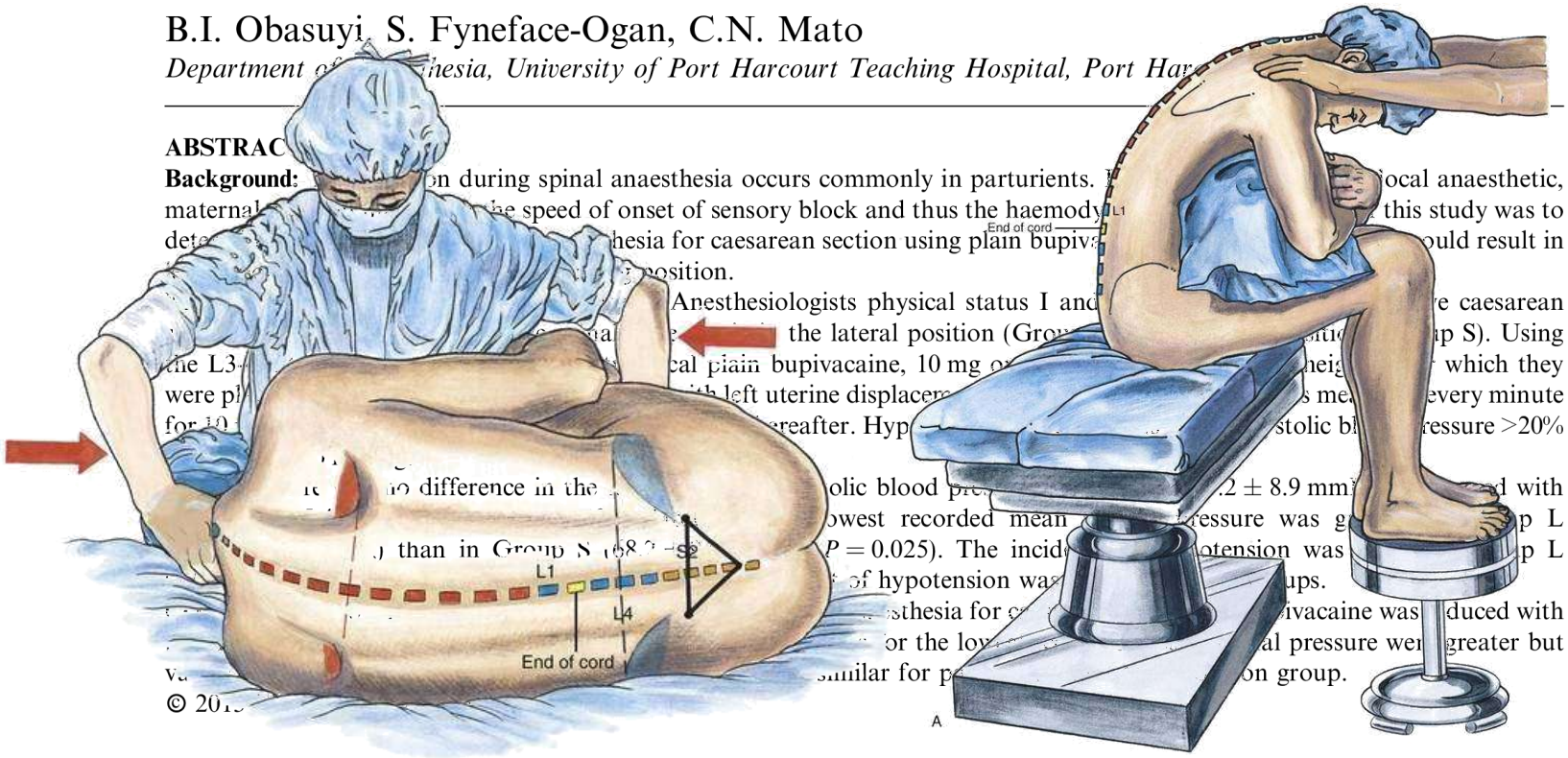


Table 3 Haemodynamic data, ephedrine use and intraoperative blood loss

	Group L (n = 50)	Group S (n = 50)	*P* value
Baseline SBP (mmHg)	122.4 ± 8.6	124.2 ± 9.9	0.3
Baseline MAP (mmHg)	93.0 ± 7.8	91.8 ± 8.9	0.4
Baseline heart rate (beats/min)	91.4 ± 8.5	92.3 ± 11.4	0.6
Incidence of hypotension	17 (34%)	28 (56%)	0.027
Time from IT injection to first hypotension (min)	11.8 ± 10.7	9.8 ± 8.2	0.5
Lowest SBP within 30 min of IT injection (mmHg)	99.2 ± 8.9	95.4 ± 12.3	0.08
Lowest MAP within 30 min of IT injection (mmHg)	72.9 ± 11.2	68.2 ± 9.6	0.02
Lowest heart rate within 30 min from IT injection (beats/min)	83 ± 11	79 ± 10	0.05
Incidence of ephedrine use	3 (6%)	5 (10%)	0.4
Total dose of ephedrine (mg)	5 ± 0	5 ± 0	1
SBP <90 mmHg	7 (14%)	14 (28%)	0.08
Blood loss (mL)	631 ± 171	697 ± 241	0.1

Data are mean ± SD or as number (%). SBP: systolic blood pressure; MAP: mean arterial pressure; IT: intrathecal.

Table 5 Incidence of complications

	Group L (n = 50)	Group S (n = 50)	*P* value
Nausea	2 (4%)	4 (8%)	0.4
Vomiting	0 (0%)	1 (2%)	0.3
Shivering	7 (14%)	11 (22%)	0.2
Dizziness/sleepiness	3 (6%)	5 (10%)	0.4
Respiratory distress	2 (4%)	7 (14%)	0.08

Data are number (%).

Spinál aplikovaný v sedě má vyšší výskyt hypotenze než na boku

International Journal of Obstetric Anesthesia (2016) **26**, 8–14
0959-289X/$ - see front matter
http://dx.doi.org/10.1016/j.ijoa.2016.01.007

ORIGINAL ARTICLE

ELSEVIER
www.obstetanesthesia.com

The impact of gestational age and fetal weight on the risk of failure of spinal anesthesia for cesarean delivery

O.A. Adesope, L.M. Einhorn, A.J. Olufolabi, M. Cooter, A.S. Habib
Department of Anesthesiology, Duke University Medical Center, Durham, NC, USA

ABSTRACT

Background: There are limited data about spinal dosing for cesarean delivery in preterm parturients. We investigated the hypothesis that preterm gestation is associated with an increased incidence of inadequate spinal anesthesia for cesarean delivery compared with term gestation.

Methods: We searched our perioperative database for women who underwent cesarean delivery under spinal or combined spinal-epidural anesthesia with hyperbaric bupivacaine $\geqslant$10.5 mg. The primary outcome was the incidence of inadequate surgical anesthesia needing conversion to general anesthesia or repetition or supplementation of the block. We divided patients into four categories: <28, 28 to <32, 32 to <37 and $\geqslant$37 weeks of gestation. The chi-square test was used to compare failure rates and a multivariable regression analysis was performed to investigate potential confounders of the relationship between gestational age and failure.

Results: A total of 5015 patients (3387 term and 1628 preterm) were included. There were 278 failures (5.5%). The incidence of failure was higher in preterm versus term patients (6.4% vs. 5.1%, P=0.02). Failure rates were 10.8%, 7.7%, 5.3% and 5% for <28, 28 to <32, 32 to <37 and $\geqslant$37 weeks of gestation, respectively. In the multivariable model, low birth weight (P<0.0001), gestational age (P=0.03), ethnicity (P=0.02) and use of combined spinal-epidural anesthesia (P<0.0001) were significantly associated with failure.

Conclusions: At standard spinal doses of hyperbaric bupivacaine used in our practice ($\geqslant$10.5 mg), there were higher odds of inadequate surgical anesthesia in preterm parturients. When adjusting for potential confounders, low birth weight was the main factor associated with failure.

Table 2 Distribution of failure by gestational age, type of neuraxial block and birth weight

Management of Failure	According to gestational age			
	<28 weeks (n=30)	28 to <32 weeks (n=28)	32 to <37 weeks (n=50)	⩾37 weeks (n=170)
Block repeated	6 (20.0%)	5 (17.9%)	3 (6.0%)	27 (15.9%)
Converted to GA	7 (23.3%)	6 (21.4%)	12 (24.0%)	16 (9.4%)
Spinal with IV adjuvants/N_2O	8 (26.7%)	8 (28.6%)	11 (22.0%)	23 (13.5%)
CSE with epidural lidocaine and IV adjuvants/N_2O	3 (10%)	1 (3.6%)	3 (6.0%)	9 (5.3%)
CSE with epidural lidocaine	6 (20.0%)	8 (28.6%)	21 (42.0%)	95 (55.9%)

jiné rozvinutí páteře, vliv progesteronu na nervové dráhy u malých týdnů…

	According to birth weight	
	Low birth weight (n=87)	Normal birth weight (n=183)
Block repeated	12 (13.8%)	26 (14.2%)
Converted to GA	23 (26.4%)	17 (9.3%)
Spinal with IV adjuvants/N_2O	22 (25.3%)	27 (14.8%)
CSE with epidural lidocaine and IV adjuvants/N_2O	5 (5.8%)	11 (6.9%)
CSE with epidural lidocaine	25 (28.7%)	[illegible]

Data are number (%).

GA: general anesthesia; IV: intravenous; N_2O: nitrous oxide; CSE: combined spinal-epidur[illegible]

jako rizikový faktor je významnější menší hmotnost plodu

International Journal of Obstetric Anesthesia (2016) **25**, 45–52
0959-289X/$ - see front matter © 2015 Elsevier Ltd. All rights reserved.
http://dx.doi.org/10.1016/j.ijoa.2015.08.007

ORIGINAL ARTICLE

ELSEVIER
www.obstetanesthesia.com

The extension of epidural blockade for emergency caesarean section: a survey of Scandinavian practice

K. Wildgaard,[a] F. Hetmann,[b] M. Ismaiel[a,c]
[a]*Department of Anaesthesiology, Næstved Hospital, Næstved, Denmark*
[b]*Department of Nursing, Oslo and Akershus University College of Applied Sciences, Oslo, Norway*
[c]*Department of Anaesthesiology, Malmö Central Sykehus, Skånes Universitetssjukukhus, Malmö, Sweden*

ABSTRACT

Background: Little is known about drugs and safety precautions used during epidural top-ups for emergency caesarean section in Scandinavia. We surveyed Scandinavian practice of epidural top-up regimens for emergency caesarean sections.

Methods: Anaesthetic departments in Denmark, Norway and Sweden were identified via National Boards of Health. An electronic questionnaire was sent to Scandinavian specialist anaesthesiologists performing obstetric anaesthesia asking for information on anaesthetic practice for emergency caesarean section.

Results: The response rate was 80% (n=145). One hundred and twenty (83%) specialists reported the existence of local guidelines for epidural top-ups. Fourteen (9.7%) specialists gave a full-dose top-up in the delivery room, 34 (23.4%) initiated the top-up with a test-dose, and 87 (60%) only administered local anaesthetics in the operating theatre. Twenty-five different drug combinations for epidural top-ups were reported. Lidocaine was used by 67 (47.9%) and ropivacaine was used by 53 (37.9%). Seventy (50%) specialists added opioid to the top-up, 15 (10.7%) added bicarbonate and 53 (37.9%) supplemented with adrenaline. Median top-up volume ranged from 16 to 19 mL for lidocaine, ropivacaine and chloroprocaine. One-hundred-and-eighteen (81%) specialists recommended trainees use the same regimen. Forty (83%) of 48 specialists topping-up in the labour unit had ephedrine readily available. During transport, pulse oximetry was used by nine (19%) and non-invasive blood pressure monitoring by eight (17%).

Conclusions: Epidural top-ups for emergency caesarean section in Scandinavia are used frequently but normally performed in the operating theatre. Drugs used differ greatly between countries and departments although top-up volumes appear similar. During transport, available equipment and drugs were limited. Best practice guidelines and national guidelines present little information on epidural top-ups that could explain the variation found.

Table 1 Location of epidural top-up in Denmark, Norway and Sweden

	Denmark (n=43)	Norway (n=43)	Sweden (n=59)	Total (n=145)	Trainee recommendation (n=138)
Full dose in labour ward	6 (14.0%)	5 (11.6%)	3 (5.1%)	14 (9.7%)	10 (6.9%)
Test dose in labour ward	9 (20.9%)	7 (16.3%)	18 (30.5%)	34 (23.4%)	26 (17.9%)
Transfer to theatre before giving local anaesthetic	22 (51.2%)	29 (67.4%)	36 (61.0%)	87 (60.0%)	95 (65.5%)
No top-up					
Alternative not described	0	0	1 (1.7%)	1 (0.7%)	0
Spinal anaesthesia	2 (4.7%)	1 (2.3%)	0	3 (2.1%)	3 (2.1%)
Unclear*	4 (9.3%)	1 (2.3%)	1 (1.7%)	6 (4.1%)	4 (2.8%)

Data are number (%). *Dependent on clinical presentation.

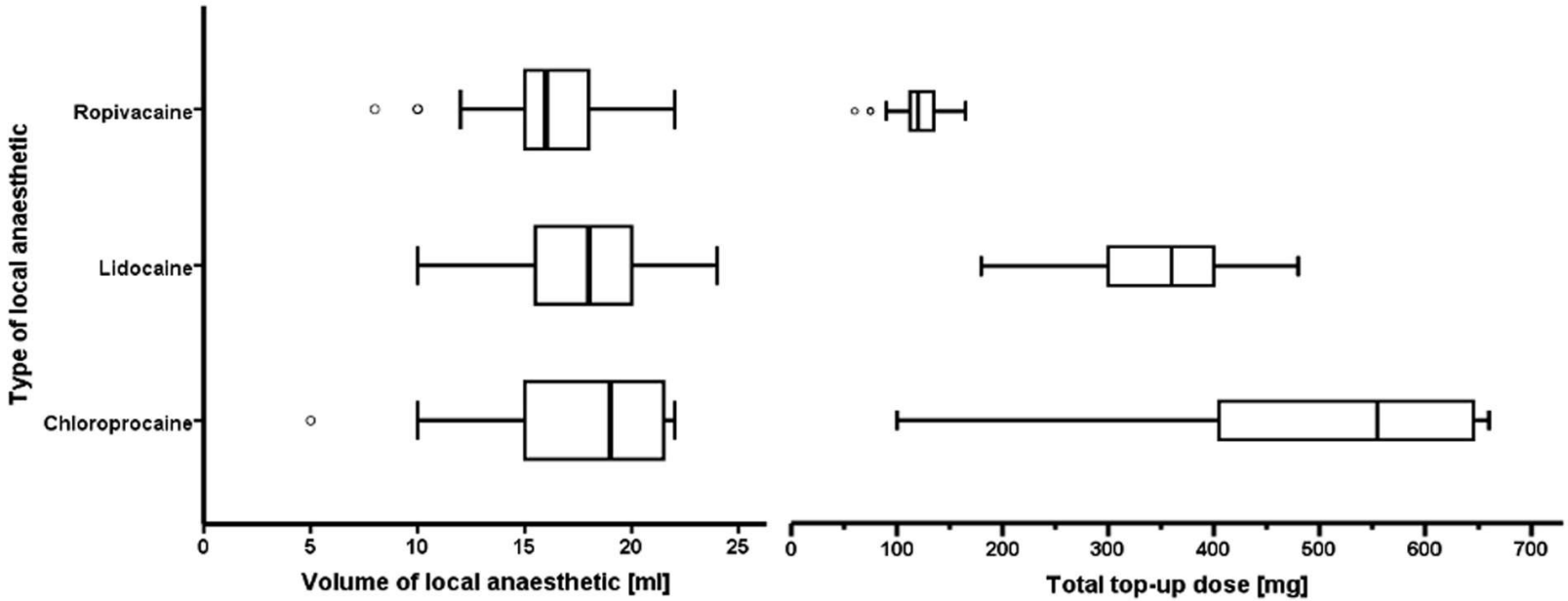


Fig. 3 Drug volumes and doses of the three most frequently used local anaesthetics in Scandinavia when initiating epidural top-up (n=126). Vertical bar: median; Box: interquartile range; Whiskers: range (excluding outliers); Circles represent outliers

Table 2 Drug combinations for epidural top-ups used in Denmark, Norway and Sweden

Denmark

Drug combinations	Frequency
2% lidocaine + adrenaline	12 (29.3%)
2% lidocaine + sufentanil + adrenaline	7 (17.1%)
2% lidocaine + fentanyl + adrenaline + bicarbonate	6 (14.6%)
2% lidocaine + sufentanil + adrenaline + bicarbonate	5 (12.2%)
2% lidocaine	2 (4.9%)
2% lidocaine + fentanyl + bicarbonate	2 (4.9%)
0.75% ropivacaine	2 (4.9%)
2% lidocaine + adrenaline + bicarbonate	1 (2.4%)
2% lidocaine + 0.5% bupivacaine	1 (2.4%)
2% lidocaine + fentanyl + adrenaline	1 (2.4%)
2% lidocaine + sufentanil	1 (2.4%)
2% lidocaine + sufentanil + bicarbonate	1 (2.4%)
Spinal	2 (4.9%)

Norway

Drug combinations	Frequency
3% chloroprocaine	9 (22.0%)
0.75% ropivacaine	8 (19.5%)
2% lidocaine	6 (14.6%)
2% lidocaine + fentanyl + adrenaline	5 (12.2%)
3% chloroprocaine + fentanyl	4 (9.8%)
2% lidocaine + adrenaline	3 (7.3%)
0.5% bupivacaine	2 (4.9%)
2% lidocaine + fentanyl	2 (4.9%)
3% chloroprocaine + sufentanil	1 (2.4%)
0.75% ropivacaine + fentanyl	1 (2.4%)
Spinal/not reported	2 (4.9%)

Sweden

Drug combinations	Frequency
0.75% ropivacaine	17 (29.3%)
0.75% ropivacaine + sufentanil	12 (20.7%)
0.75% ropivacaine + fentanyl	9 (15.5%)
2% lidocaine + sufentanil + adrenaline	5 (8.6%)
2% lidocaine + adrenaline	4 (6.9%)
2% lidocaine + sufentanil	2 (3.4%)
0.75% ropivacaine + sufentanil + morphine	2 (3.4%)
1% ropivacaine + fentanyl	2 (3.4%)
0.5% bupivacaine	1 (1.7%)
2% lidocaine + fentanyl + adrenaline	1 (1.7%)
1% lidocaine + adrenaline	1 (1.7%)
2% mepivacaine + adrenaline	1 (1.7%)
2% mepivacaine + fentanyl + adrenaline	1 (1.7%)
Not reported	1 (1.7%)

Data are number (%).

Journal of Clinical Anesthesia 39 (2017) 57–63

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Journal of Clinical Anesthesia

Original Contribution

Remifentanil as an alternative to epidural analgesia for vaginal delivery: A meta-analysis of randomized trials

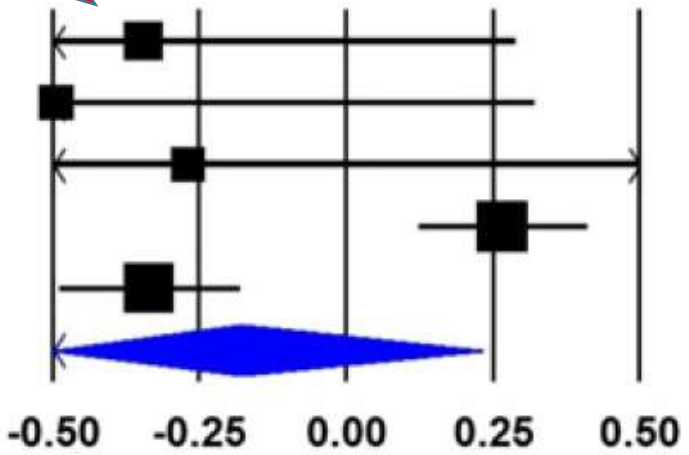
Myeongjong Lee, MD [a], Fang Zhu, MD, PhD [b], Jessica Moodie, MLIS [b], Zhe Zhang, MD [e], Davy Cheng, MD, MSc [b,c], Janet Martin, PharmD, MSc(HTA) [b,c,d,*]

[a] *Konkuk University, School of Medicine, Department of Anesthesiology and Pain Medicine, Chungju, South Korea*
[b] *Centre for Medical Evidence, Decision Integrity and Clinical Impact (MEDICI), University of Western Ontario, London, ON, Canada*
[c] *Department of Anesthesia & Perioperative Medicine, University of Western Ontario, London, ON, Canada*
[d] *Department of Epidemiology & Biostatistics, University of Western Ontario, London, ON, Canada*
[e] *Department of Anesthesiology, Fuwai Hospital, Chinese Academy of Medical Sciences and Peking Union Medical College, Beijing, China*

dobrá alternativa EDA, dokonce míra spokojenosti rodičky je u RMF i vyšší (opiáty). Při hodnocení pomocí VAS je stále ale lepší EDA

Study na… …iff in means and 95% CI

		in means	limit	limit	p-Value
Stocki,2014	Satisfaction	-0.34	-0.98	0.29	0.29
Stourac,2014	Satisfaction	-0.49	-1.31	0.32	0.23
Douma,2011	Satisfaction	-0.27	-1.15	0.61	0.55
Ismail,2012	Satisfaction	0.27	0.12	0.41	0.00
Freeman.201	Satisfaction	-0.34	-0.49	-0.18	0.00
		-0.18	-0.59	0.23	0.39



I^2 = 88%

Fig. 3. Standardized mean differences in Maternal Satisfaction Scores for remifentanil PCA vs epidural analgesia.

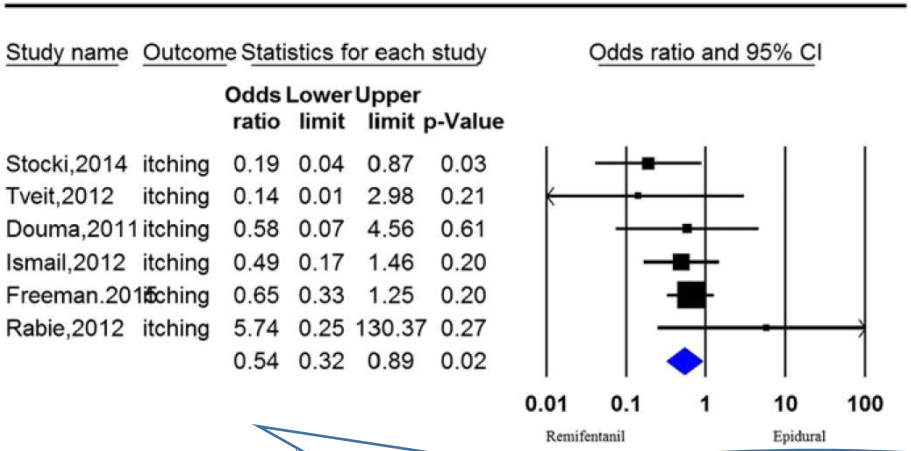


Fig. 5. Odds ratio for incidenc

proti RMF je hlavně pruritus,
proti EDA častější hypoxie (pokles TK?)

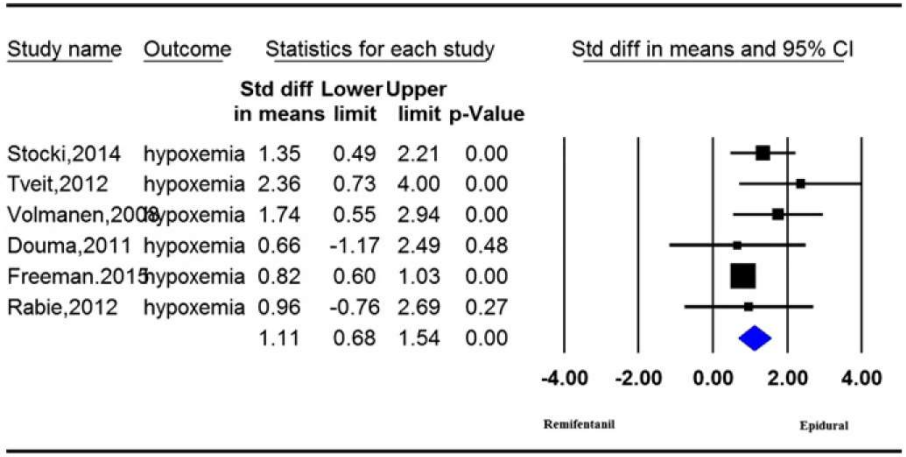


Fig. 7. Odds ratio for incidence of hypoxemia for remifentanil PCA vs epidural analgesia.

International Journal of Obstetric Anesthesia (2016) **28**, 12–16
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http://dx.doi.org/10.1016/j.ijoa.2016.07.007

ORIGINAL ARTICLE

ELSEVIER
www.obstetanesthesia.com

Ultrasound to identify the lumbar space in women with impalpable bony landmarks presenting for elective caesarean delivery under spinal anaesthesia: a randomised trial

M. Creaney, D. Mullane, C. Casby, T. Tan
Department of Perioperative Medicine, The Coombe Women and Infants University Hospital, Dublin, Ireland

ABSTRACT

Background: Ultrasound can facilitate neuraxial blockade in patients with poorly defined anatomical surface landmarks, but there are no studies comparing an ultrasound-guided technique with landmark palpation for spinal anaesthesia. The objective of this study was to compare pre-procedural lumbar ultrasonography with landmark palpation to locate the needle insertion point in women with impalpable lumbar spinous processes presenting for caesarean delivery.

Methods: After institutional ethics committee approval, 20 women with impalpable lumbar spinous processes presenting for elective caesarean delivery were recruited. Patients were randomised to palpation or ultrasound. The primary outcome of the study was the number of needle passes to achieve lumbar puncture. Secondary outcomes were the overall procedural time and patient satisfaction score.

Results: There was no difference in mean (±SD) body mass index of both groups (ultrasound 39.1 ± 5.02 kg/m^2 vs. palpation 38.3 ± 3.77 kg/m^2). There were significantly fewer needle passes in the ultrasound group (median 3 [IQR 1.8–3.2]) compared to the palpation group (median 5.5 [IQR 3.2–7.2] (P=0.03)). More time was required to locate the needle insertion point in the ultrasound group (ultrasound 91.8 ± 30.8 s vs. palpation 32.6 ± 11.4 s, P <0.001). There was no difference in the total procedural time between groups (ultrasound 191.8 ± 49.4 s vs. palpation 192 ± 110.9 s, P=0.99).

Conclusion: The use of ultrasonography to locate the needle insertion point reduced the number of needle passes in women with impalpable lumbar spinous processes undergoing elective caesarean delivery under spinal anaesthesia. Its use did not prolong overall procedural time.

Table 1 Patient characteristics

	Palpation (n=10)	Ultrasound (n=10)	*P* Value
Age (years)	33.2 ± 1.70	29.7 ± 2.12	0.20
Height (m)	1.64 ± 0.89	1.63 ± 0.7	
Weight (kg)	105 ± 17	104 ± 8.6	
Body mass index (kg/m^2)	38.4 ± 1.06	39.1 ± 1.59	0.72
Total body fat (%)	34.2 ± 2.64	39.8 ± 2.08	0.11

Data are mean ± SD.

s UZ navigací méně pokusů

Table 2 Needle passes and procedural times

	Palpation (n=10)	Ultrasound (n=10)	*P* Value
Number of needle redirections	5.5 [3.2–7.2]	3 [1.8–3.2]	0.03
New space attempted	1	0	
Total time (s)	192 ± 110.9	191.8 ± 49.4	0.99
Time to mark insertion point (s)	32.6 ± 11.4	91.8 ± 30.8	<0.001
Time to identification of CSF (s)	159.4 ± 104	100 ± 54.4	0.127

Data are median [IQR] or mean ± SD.

Journal of Clinical Anesthesia 37 (2017) 82–85

Contents lists available at ScienceDirect

Journal of Clinical Anesthesia

Original Contribution

The use of ultrasound in planned cesarean delivery under spinal anesthesia for patients having nonprominent anatomic landmarks

Mursel Ekinci, MD [a,*,1], Hacı Ahmet Alici, MD [a,2], Ali Ahiskalioglu, MD [a,3], Ilker Ince, MD [a,4], Mehmet Aksoy, MD [a], Erkan Cem Celik, MD [b,5], Aysenur Dostbil, MD [a], Mine Celik, MD [a], Pinar Karaca Baysal, MD [c,6], Birzat Emre Golboyu, MD [c,7], Ayşe Nur Yeksan, MD [d,8]

[a] Department of Anesthesiology and Reanimation, Ataturk University Medical Faculty, 25030 Yakutiye, Erzurum, Turkey
[b] Clinic of Anesthesiology and Reanimation, Palandoken State Hospital, 25080 Palandoken, Erzurum, Turkey
[c] Kars State Hospital, Clinic of Anesthesiology and Reanimation, 36100 Merkez, Kars, Turkey
[d] Department of Anesthesiology and Reanimation, Kafkas University Medical Faculty, 36100 Merkez, Kars, Turkey

ARTICLE INFO

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Keywords:
Ultrasound
Vertebral column
Landmark
Spinal anesthesia

ABSTRACT

Study objective: The aim of the study was to compare conventional landmark method with ultrasound-guided spinal anesthesia in cesarean delivery cases where spinous processes and interspinous spaces were not prominent on physical examination.
Design: Randomized controlled clinical trial.
Setting: Operating rooms of university hospital of Erzurum, Turkey.
Patients: Sixty-four 18- to 45-year-old American Society of Anesthesiologists I-II patients scheduled for cesarean delivery under spinal anesthesia having hardly palpated anatomic landmarks on vertebral column.
Interventions: Palpation difficulty of vertebral column landmarks was scored as 0, 1, 2, or 3 from easy to difficult for all patients in sitting position. The patients with score 2 or 3 were randomly allocated into 2 groups as group C (conventional, n = 32) and group U (ultrasound, n = 32) in which ultrasound guidance was used.
Measurements: The number of skin punctures, the number of needle steering, the number of puncture tried vertebral levels, and procedure time were all recorded.
Main results: The number of skin punctures was significantly lower in group U ($P < .001$). Successful subarachnoid puncture on first attempt was also significantly higher in group U ($P < .01$). The duration of procedure in the patients with score 2 was determined to be significantly longer in the ultrasound-guided group ($P < .001$).
Conclusions: Ultrasound guidance is an effective and safe method to reduce the number of puncture attempts, improve the success rate of subarachnoid access on the first attempt, and reduce the need to puncture multiple levels, although it prolongs procedure time in patients with score 2 according to our scoring system designed for this current study.

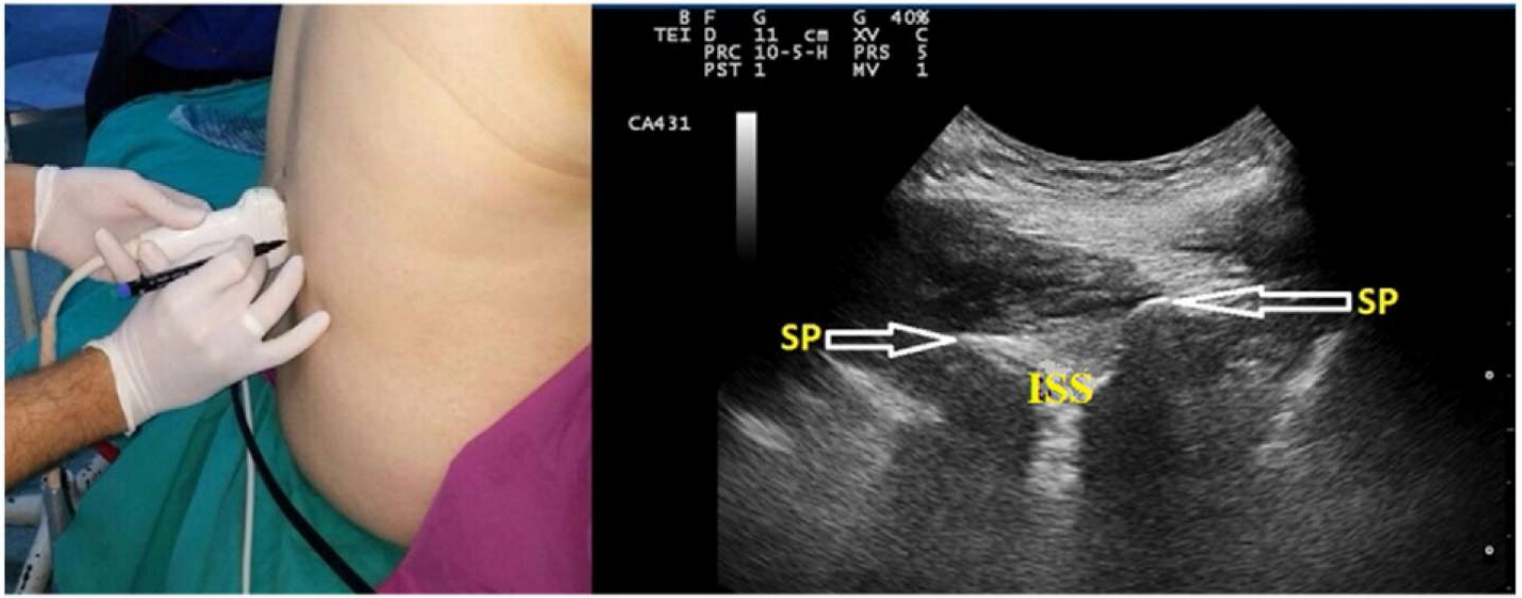

Fig. 1. Lumbar sagittal sonogram, spinous process (SP), and interspinous space (ISS).

Table 2
Comparison of the data related to the spinal block intervention

	Ultrasound group (n = 32)	Conventional group (n = 32)	*P*
No. of punctures[a]	1.19 ± 0.47	1.84 ± 0.85	.000*
No. of needle steering[a]	2.66 ± 1.38	3.50 ± 2.05	.058
No. of puncture tried vertebral levels[a]	1.09 ± 0.30	1.28 ± 0.46	.056
Procedure time (s)[a]	242.34 ± 63.17	204.59 ± 113.21	.105

[a] All data are stated as mean ± SD.
* $P > .05$ according to the independent-sample *t* test.

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www.obstetanesthesia.com

KARIM

ORIGINAL ARTICLE

Ultrasound-guided spinal anaesthesia in obstetrics: is there an advantage over the landmark technique in patients with easil palpable spines?

T. Ansari, A. Yousef, A. El Gamassy, M. Fayez
Department of Anaesthesia, Corniche Hospital, Abu Dhabi, United Arab Emirates

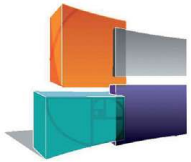
platí to i u „jednoduchých“ punkcí !

Table 2 Outcome data for landmark and ultrasound groups

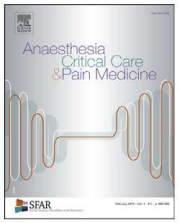
	Landmark ($n = 75$)	Ultrasound ($n = 75$)	P value
Procedure time (s)	52.5 ± 55.8	41.4 ± 44.7	0.18
Number of skin punctures	1.31 ± 0.7	1.12 ± 0.4	0.07
Number of passes	1.99 ± 1.5	1.67 ± 1.2	0.20
Successful spinal anaesthesia after one puncture	61 (81.3%)	69 (92%)	0.153
Successful spinal anaesthesia after one pass	47 (62%)	49 (65%)	0.175
Headache VRS (0–10)	0	0.4 ± 0.3	0.32
Backache VRS (0–10)	0.27 ± 0.9	0.11 ± 0.5	0.23
Patient satisfaction VRS (0–10)	9.69 ± 0.7	9.75 ± 0.6	0.65

Data are mean ± SD or number (%). VRS: verbal rating scale.

Anaesth Crit Care Pain Med 34 (2015) 277–280



SFAR
Société Française d'Anesthésie et de Réanimation



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, boulevard Tonnellé, 37044 Tours cedex 9, France
[b] University Hospital of Messina, Department of Human Pathology, Via Consolare Valeria, 1, 98125 Messina, Italy

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Keywords:
Spinal anaesthesia
Caesarean section
Diameter
Needle
Failure
Postdural puncture headache

ABSTRACT

Objectives: Spinal anaesthesia represents the technique of choice for elective caesarean section. The purpose of this study was to compare the puncture failure rates with 25, 26 or 27 gauge (G) pencil-point, Whitacre type (with introducer) needles during spinal anaesthesia for caesarean section.
Study design: Prospective, randomised, experimental study in healthy subjects.
Patients and methods: We recruited 330 adults, consecutively scheduled parturients, randomised into three groups. The subarachnoid puncture procedure was standardised. The flexibility of the three needle types was assessed in vitro, and a force was applied using a dynamometer. The occurrence of postdural puncture headache was also evaluated.
Results: The number of spinal puncture failures was significantly higher in the 27 G group, than in the 25 G ($P = 0.006$) group and the 26 G ($P < 0.001$) group, but did not differ between the 25 G and 26 G groups ($P = 0.606$). Ten postdural puncture headaches were observed without significant differences among the groups.
Conclusions: This prospective study showed that puncture failures occur less frequently with the use of 25 G or 26 G pencil-point needles as compared to 27 G needles, probably due to the higher flexibility of the latter. This characteristic was demonstrated in vitro, in a reproducible model. This experiment suggests that a 26 G pencil-point needle is the optimal gauge for performing spinal anaesthesia for scheduled caesarean sections.

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.

27 G více selhání,
26 G více PDPH

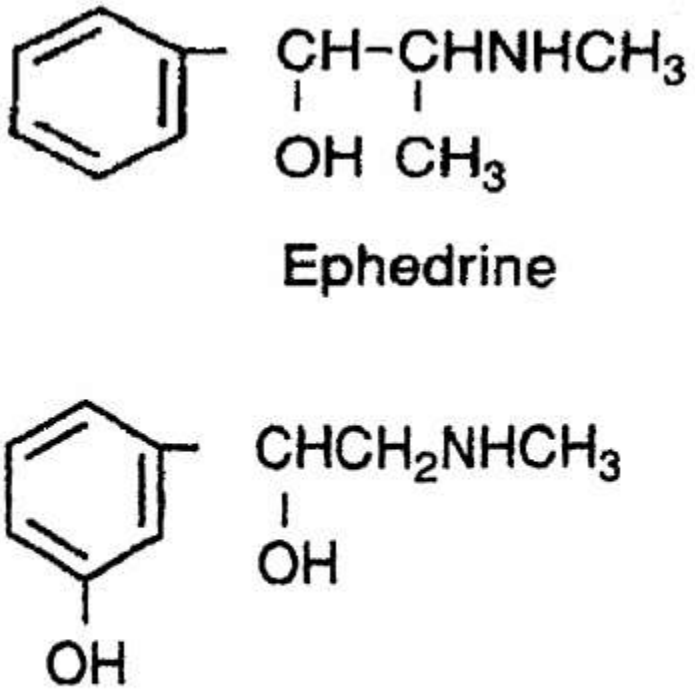
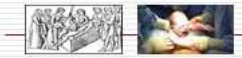


Figure 1. *Biochemical structure of basic vasopressors.*

HYPOTENZE

- vzhledem k nedostatečnému efektu preloadu i co-loadu je ve většině případů vhodné současné podání vasopresorů (efedrin, phenylephrin)
- lékem volby je **efedrin** (bolus 5-15 mg iv.)
- nebo **phenylephrin** (bolus 0,05-0,15 mg iv.)




MEDIFLEKS® 500 ml
KOÇAK FARMA
ISOLYTE® M
(%5 DEKSTROZLU Multipl Elektrolit Idame Çözeltisi)


500 ml
Voluven® 6%
Infusionslösung
6% HES 130/0,4


Phenylephrine 50 micrograms/ml
Solution for injection in pre-filled syringe
IV Use
x10
500 micrograms
10 ml
POM
EPHEDRIN Biotika
injekční roztok
Clindamycin Kabi 150 mg/ml
360 Kč

Adrenergic Receptor Specificity

Drug	α_1	α_2	β_1	β_2	Dopaminergic
Epinephrine	↔	↔	↔	↔	
Ephedrine	↔	↔	↔	↔	
Norepinephrine	↔	↔	↔		
Phenylephrine	↔				
Isoproterenol			↔	↔	
Dopamine	↔		↔	↔	↔
Dobutamine			↔		
terbutaline				↔	

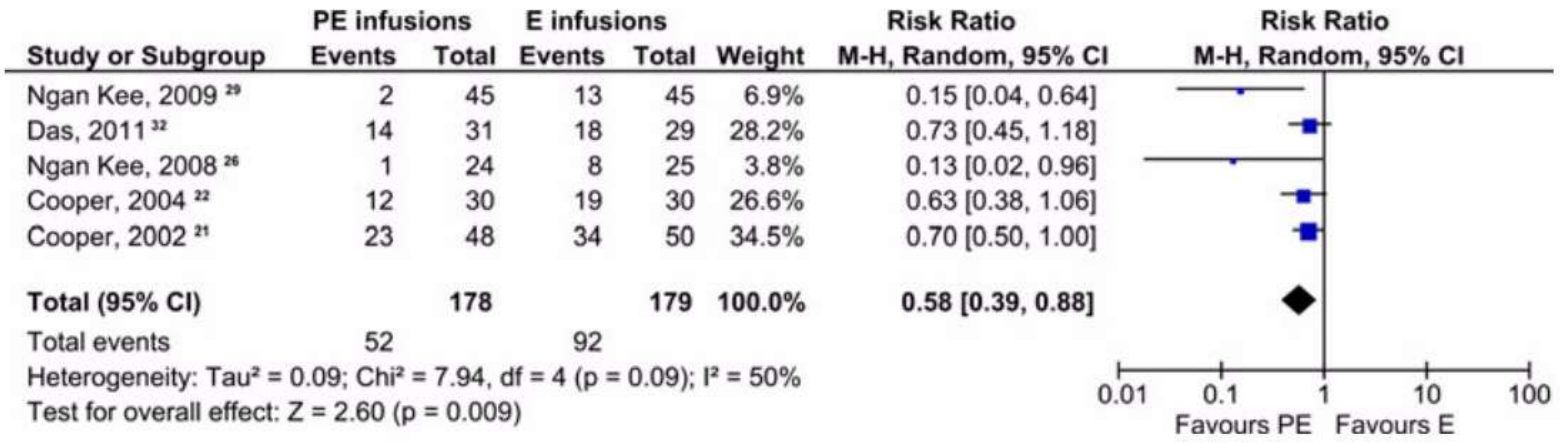


Figure 4 Forest plot for the rate of hypotension during caesarean section before fetal delivery: prophylactic phenylephrine (PE) infusion vs ephedrine (E) infusion. M-H, Mantel-Haenszel; Random, random-effects model.

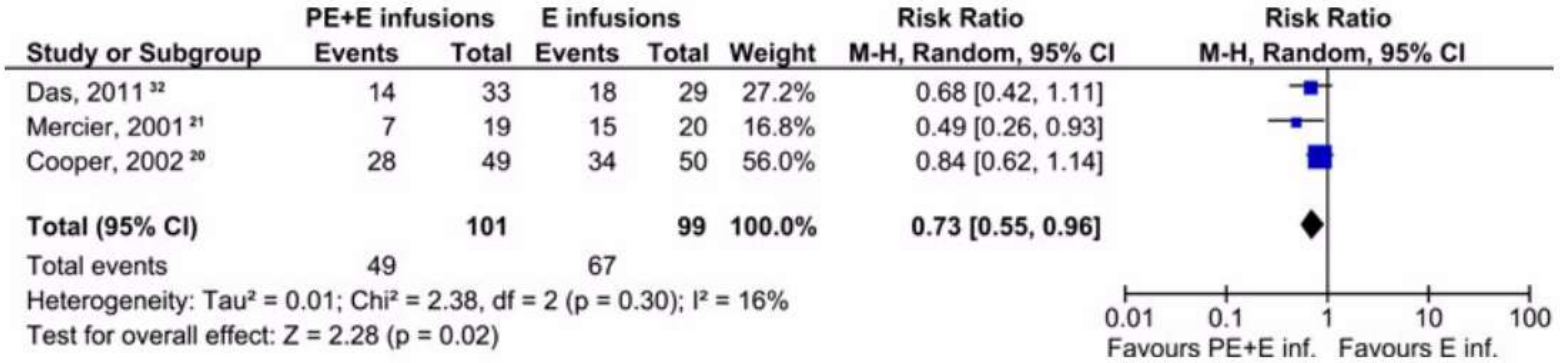
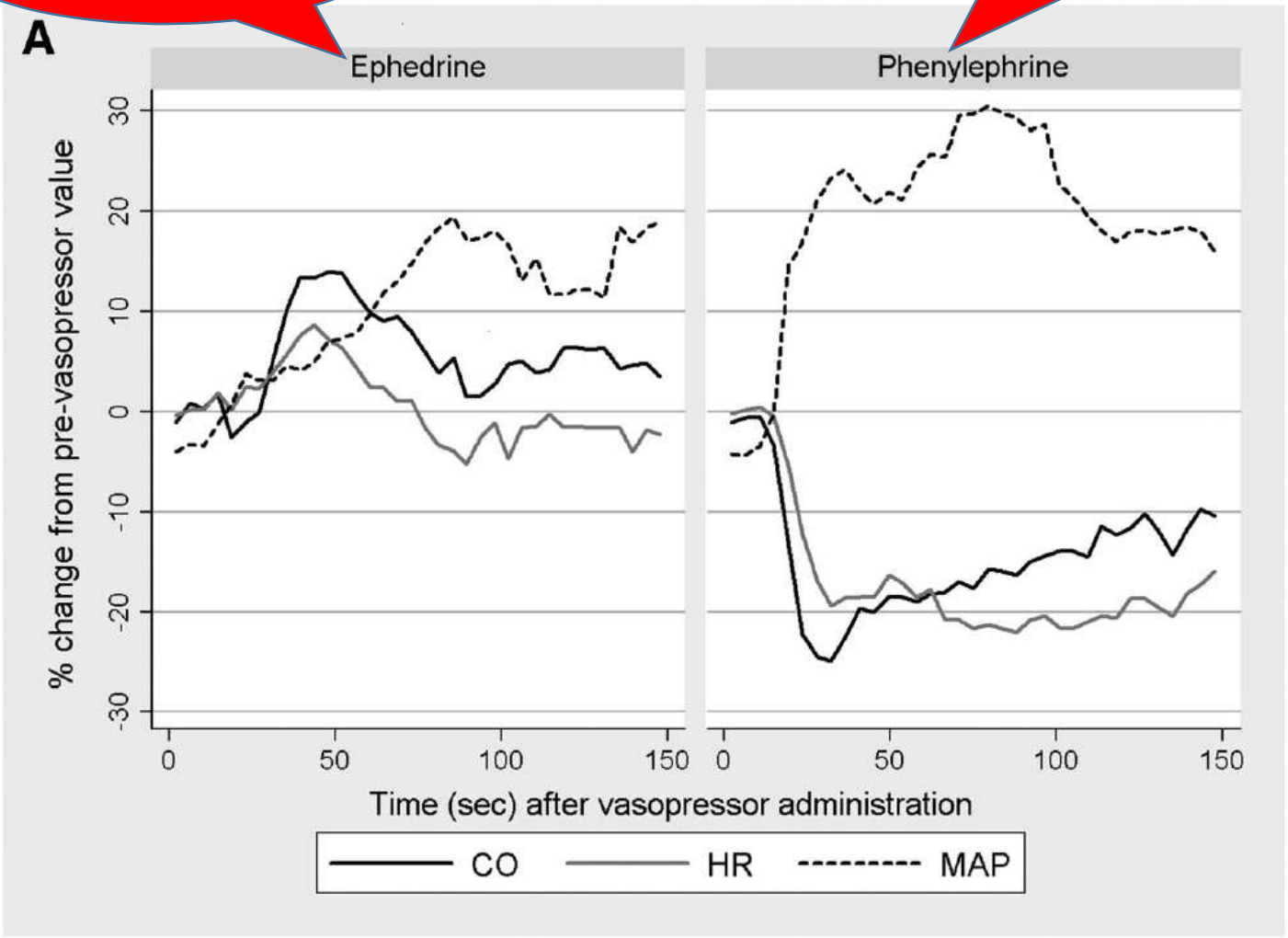


Figure 5 Forest plot for the rate of hypotension during caesarean section before fetal delivery: prophylactic ephedrine (E) infusion with or without phenylephrine (PE). inf, infusion; M-H, Mantel-Haenszel; Random, random-effects model.

vyšší srdeční výdej

reflexní bradykard



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

EVIDENCE BASED MEDICINE

The NEW ENGLAND JOURNAL of MEDICINE

KARIM

ORIGINAL ARTICLE

High-Frequency Oscillation for Acute Respiratory Distress Syndrome

Duncan Young, D.M., Sarah E. Lamb, D.Phil., Sanjoy Shah, M.D., Iain MacKenzie, M.D., William Tunnicliffe, M.Sc., Ranjit Lall, Ph.D., Kathy Rowan, D.Phil., and Brian H. Cuthbertson, M.D., for the OSCAR Study Group*

N Engl J Med 2013; 368:806-813

ABSTRACT

BACKGROUND

Patients with the acute respiratory distress syndrome (ARDS) require mechanical ventilation to maintain arterial oxygenation, but this treatment may produce secondary lung injury. High-frequency oscillatory ventilation (HFOV) may reduce this secondary damage.

METHODS

In a multicenter study, we randomly assigned adults requiring mechanical ventilation for ARDS to undergo either HFOV with a Novalung R100 ventilator (Metran) or usual ventilatory care. All the patients had a ratio of the partial pressure of arterial oxygen (PaO_2) to the fraction of inspired oxygen (FIO_2) of 200 mm Hg (26.7 kPa) or less and an expected duration of ventilation of at least 2 days. The primary outcome was all-cause mortality 30 days after randomization.

RESULTS

There was no significant between-group difference in the primary outcome, which occurred in 166 of 398 patients (41.7%) in the HFOV group and 163 of 397 patients (41.1%) in the conventional-ventilation group (P=0.85 by the chi-square test). After adjustment for study center, sex, score on the Acute Physiology and Chronic Health Evaluation (APACHE) II, and the initial PaO_2:FIO_2 ratio, the odds ratio in the conventional-ventilation group was 1.03 (95% confidence interval, 0.75 to 1.40; P=0.87 by logistic regression).

CONCLUSIONS

The use of HFOV had no significant effect on 30-day mortality in patients undergoing mechanical ventilation for ARDS. (Funded by the National Institute for Health Research Health Technology Assessment Programme; OSCAR Current Controlled Trials number, ISRCTN10416500.)

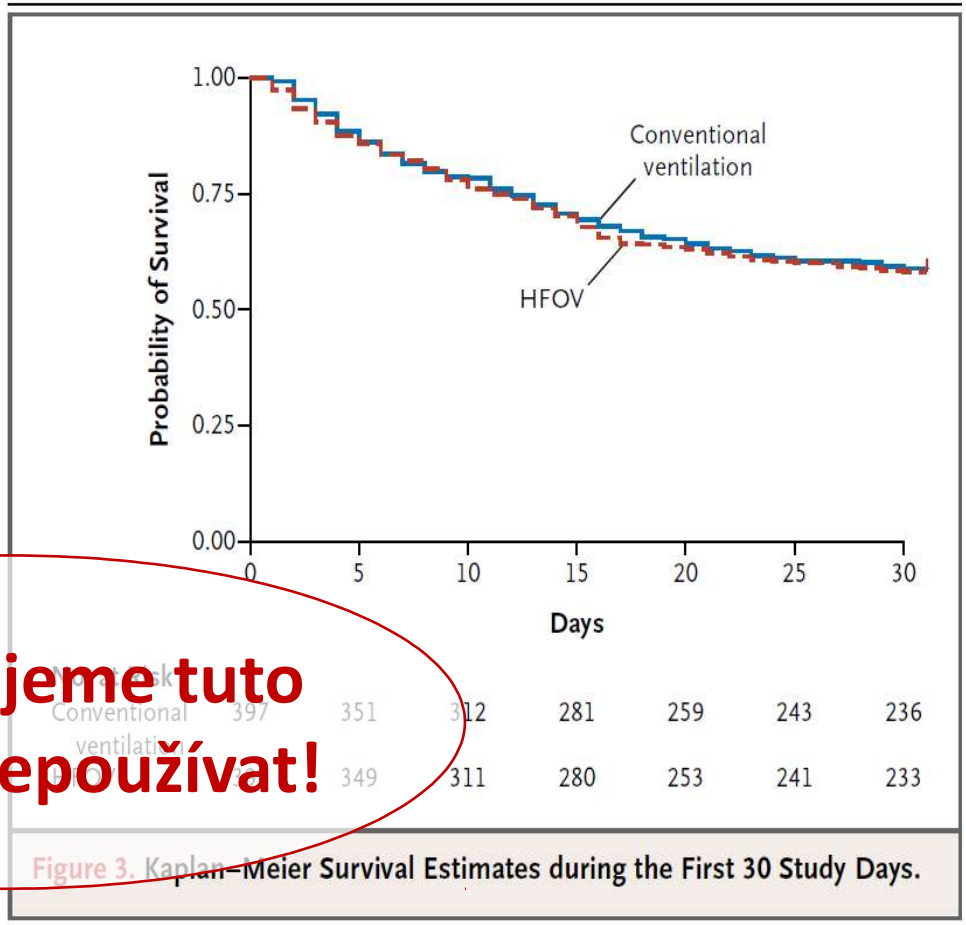


Figure 3. Kaplan–Meier Survival Estimates during the First 30 Study Days.

Doporučujeme tuto metodu nepoužívat!

Pouze 3 nemocnice měli zkušenost s HFOV, 6 částečnou a 20 žádnou zkušenost !

METHODS

Study Design

We conducted a randomized, controlled trial of HFOV, as compared with conventional mechanical ventilation. Patients were recruited from adult general intensive care units (ICUs) in 12 university hospitals, 4 university-affiliated hospitals, and 13 district general hospitals in England, Wales, and Scotland. Three hospitals had previous experience with HFOV with the use of SensorMedics 3100B ventilators (CareFusion), and the remainder had limited experience (in 6 hospitals) or no experience (in 20 hospitals) with HFOV. Details regarding HFOV training are provided in the Supplementary Appendix, available with the full text of this article at NEJM.org. The full protocol is also available at NEJM.org.

Study Treatments

Patients in the HFOV group were treated with the use of a Novalung R100 ventilator (Metran)[7]

N Engl J Med 2013; 368:806-813

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Hydroxyethyl Starch 130/0.42 versus Ringer's Acetate in Severe Sepsis

Anders Perner, M.D., Ph.D., Nicolai Haase, M.D.,
Anne B. Guttormsen, M.D., Ph.D., Jyrki Tenhunen, M.D., Ph.D.,
Gudmundur Klemenzson, M.D., Anders Åneman, M.D., Ph.D.,
Kristian R. Madsen, M.D., Morten H. Møller, M.D., Ph.D., Jeanie M. Elkjær, M.D.,
Lone M. Poulsen, M.D., Asger Bendtsen, M.D., M.P.H., Robert Winding, M.D.,
Morten Steensen, M.D., Pawel Berezowicz, M.D., Ph.D., Peter Søe-Jensen, M.D.,
Morten Bestle, M.D., Ph.D., Kristian Strand, M.D., Ph.D., Jørgen Wiis, M.D.,
Jonathan O. White, M.D., Klaus J. Thornberg, M.D., Lars Quist, M.D.,
Jonas Nielsen, M.D., Ph.D., Lasse H. Andersen, M.D., Lars B. Holst, M.D.,
Katrin Thormar, M.D., Anne-Lene Kjældgaard, M.D., Maria L. Fabritius, M.D.,
Frederik Mondrup, M.D., Frank C. Pott, M.D., D.M.Sci., Thea P. Møller, M.D.,
Per Winkel, M.D., D.M.Sci., and Jørn Wetterslev, M.D., Ph.D.,
for the 6S Trial Group and the Scandinavian Critical Care Trials Group*

KARIM

ORIGINAL ARTICLE

N ENGL J MED 367;2 NEJM.ORG JULY 12, 2012

Hydroxyethyl Starch 130/0.42 versus Ringer's Acetate in Severe Sepsis

častější dialýza

Outcome	HES 130/0.42 (N=398)	Ringer's Acetate (N=400)	Relative Risk (95% CI)	P Value
Primary outcome				
Dead or dependent on dialysis at day 90 — no. (%)	202 (51)	173 (43)	1.17 (1.01–1.36)	0.03
Dead at day 90 — no. (%)	201 (51)	172 (43)	1.17 (1.01–1.36)	0.03

vyšší 90ti denní mortalita

Sepsis in European intensive care units: Results of the SOAP study*

Jean-Louis Vincent, MD, PhD, FCCM; Yasser Sakr, MB, BCh, MSc; Charles L. Sprung, MD; V. Marco Ranieri, MD; Konrad Reinhart, MD, PhD; Herwig Gerlach, MD, PhD; Rui Moreno, MD, PhD; Jean Carlet, MD, PhD; Jean-Roger Le Gall, MD; Didier Payen, MD; on behalf of the Sepsis Occurrence in Acutely Ill Patients Investigators

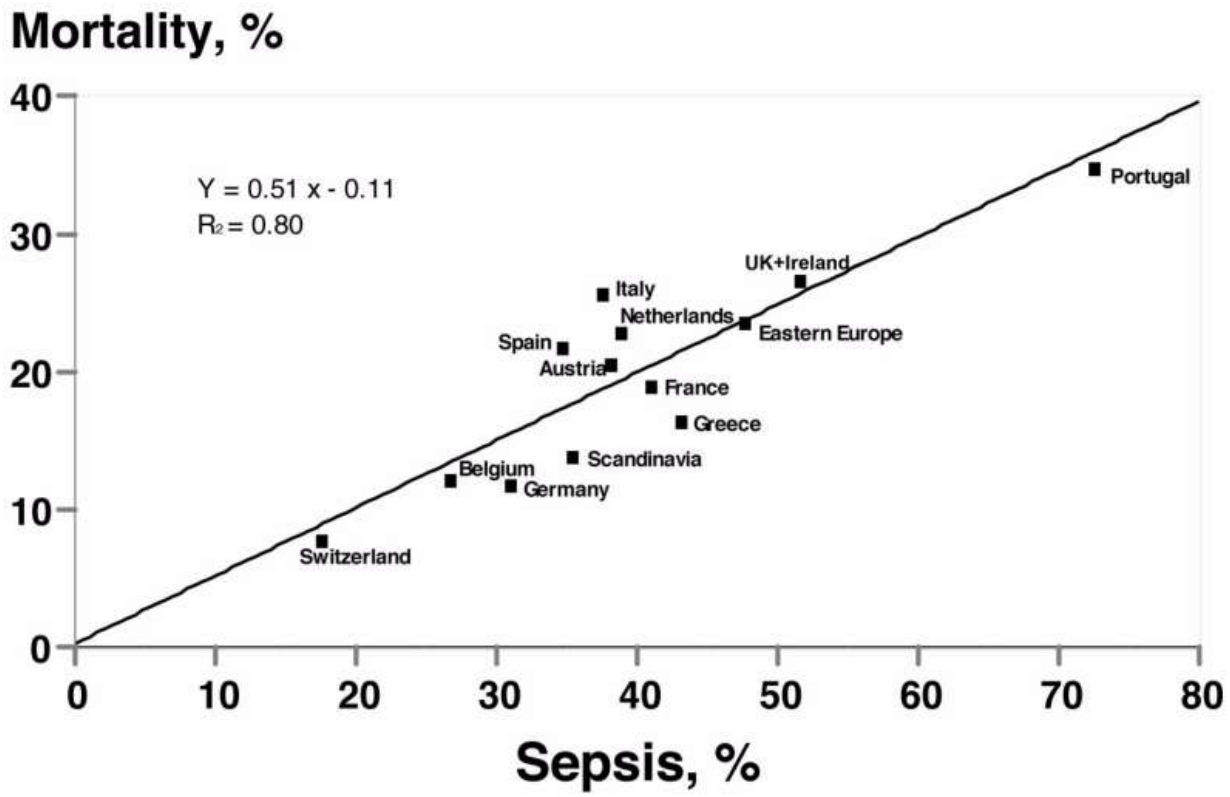


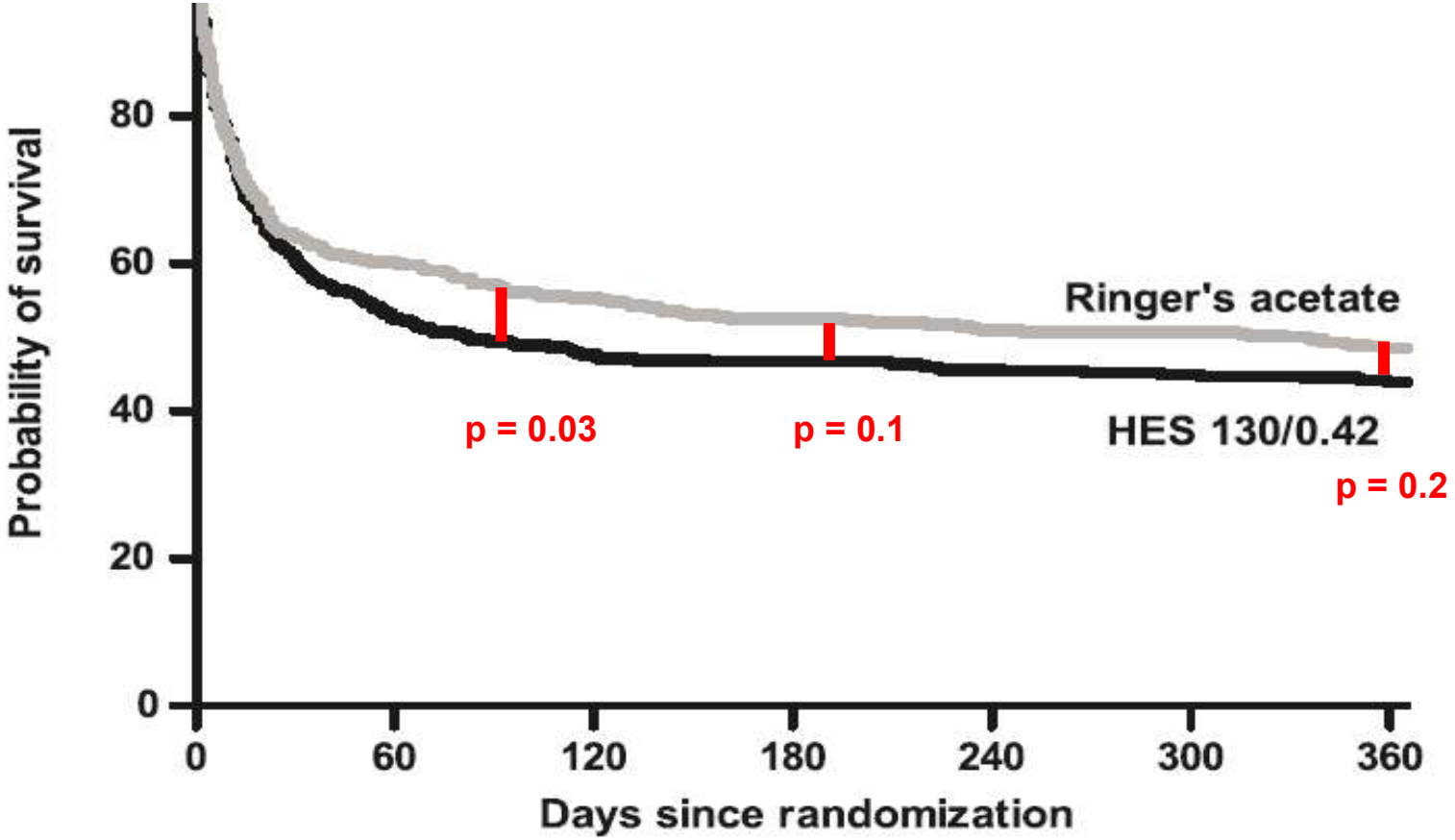
Figure 2. Relationship between intensive care unit mortality rates for all patients and frequency of sepsis in the various European countries.

Intensive Care Med (2014) 40:927–934
DOI 10.1007/s00134-014-3311-y

SEVEN-DAY PROFILE PUBLICATION

Anders Perner
Nicolai Haase
Per Winkel
Anne B. Guttormsen
Jyrki Tenhunen
Gudmundur Klemenzson
Rasmus G. Müller
Anders Åneman
Jørn Wetterslev

Long-term outcomes in patients with severe sepsis randomised to resuscitation with hydroxyethyl starch 130/0.42 or Ringer's acetate



Time to Treatment and Mortality during Mandated Emergency Care for Sepsis

Christopher W. Seymour, M.D., Foster Gesten, M.D., Hallie C. Prescott, M.D., Marcus E. Friedrich, M.D., Theodore J. Iwashyna, M.D., Ph.D., Gary S. Phillips, M.A.S., Stanley Lemeshow, Ph.D., Tiffany Osborn, M.D., M.P.H., Kathleen M. Terry, Ph.D., and Mitchell M. Levy, M.D.

N Engl J Med 2017;376:2235-44

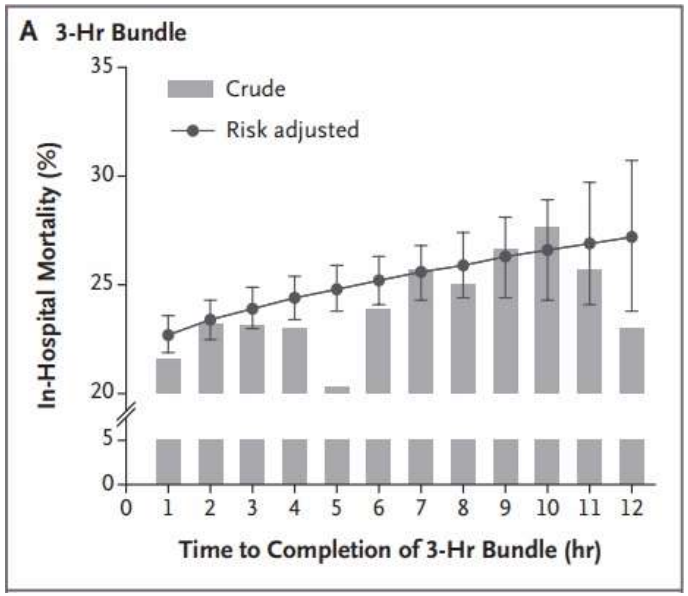


Figure 3. Crude In-Hospital Mortality and Predicted Risks of In-Hospital Death.

Shown are the crude in-hospital mortality and predicted risks of in-hospital death, with adjustment for covariates across a range of time after protocol initiation, for the completion of the 3-hour bundle of sepsis care (Panel A), the administration of broad-spectrum antibiotics (Panel B), and the completion of the initial bolus of intravenous fluids (Panel C) in a typical patient. I bars represent 95% confidence intervals.