Quoi de neuf en anesthésie obstétricale ?

Lionel Bouvet

Hospices Civils de Lyon

Hôpital Femme Mère Enfant

Lyon

Aucun conflit d’intérêt

Practice Guidelines for Obstetric Anesthesia

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

Anesthesiology 2016; 124:270-300

- Recommandations ASA / SOAP
- Pas de changement notable *vs*. 2007
- Actualisation des données bibliographiques

Recommandations professionnelles:

Organisation de l'Anesthésie-Réanimation Obstétricale.

SFAR

Société Française d'Anesthésie et de Réanimation

Sociétés ou groupements professionnels associés : CARO, CNGOF, CNSF, IADE,SFN

Club d'Anesthésie-Réanimation en Obstétrique

Recommandations portant sur les **moyens matériels et humains,** l'organisation du **parcours de soins,** l'établissement de **procédures,** nécessité de **formation et évaluation (protocoles, RMM, EPP, réseaux)**
Intègre des dispositions légales
Appropriation de ces recommandations, intégration dans la charte de fonctionnement avec comme **objectif la réduction de la morbidité maternelle**

Intubation

Failed tracheal intubation during obstetric general anaesthesia: a literature review

International Journal of Obstetric Anesthesia (2015) 24, 356–374

S.M. Kinsella,[a] A.L. Winton,[a] M.C. Mushambi,[b] K. Ramaswamy,[c] H. Swales,[d] A.C. Quinn,[e] M. Popat[f]

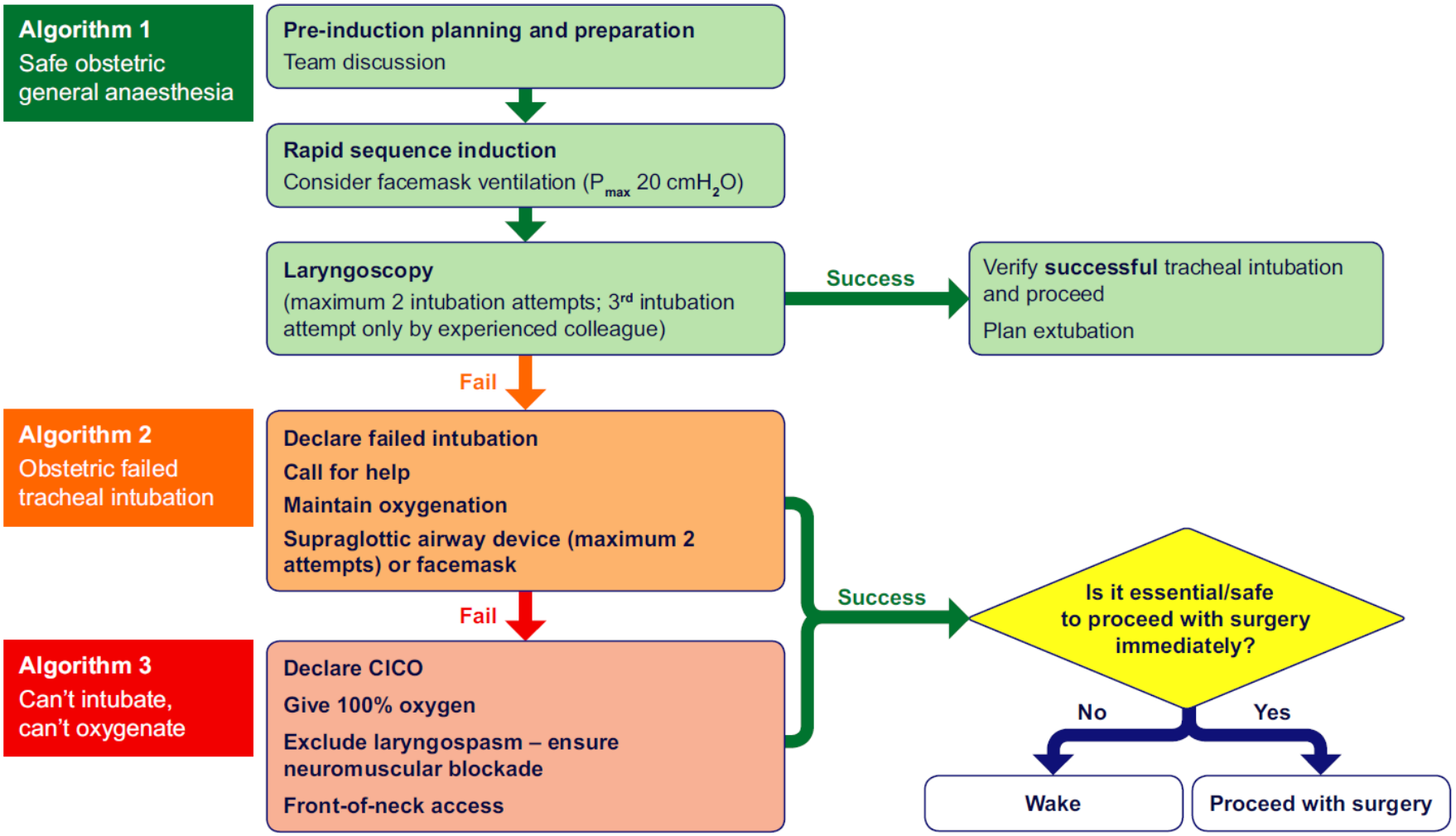
Période 1970 – 2015, 33 publications, 142 560 femmes
Échec intubation : 1/390 AG obstétricale (2,6 /1000 anesthésies)
Décès consécutif : 1/90 échecs
Recours à la cricothyroïdotomie : 1/60 échecs (3,4/100 000)
Recours au masque laryngé

Guidelines

Obstetric Anaesthetists' Association and Difficult Airway Society guidelines for the management of difficult and failed tracheal intubation in obstetrics*

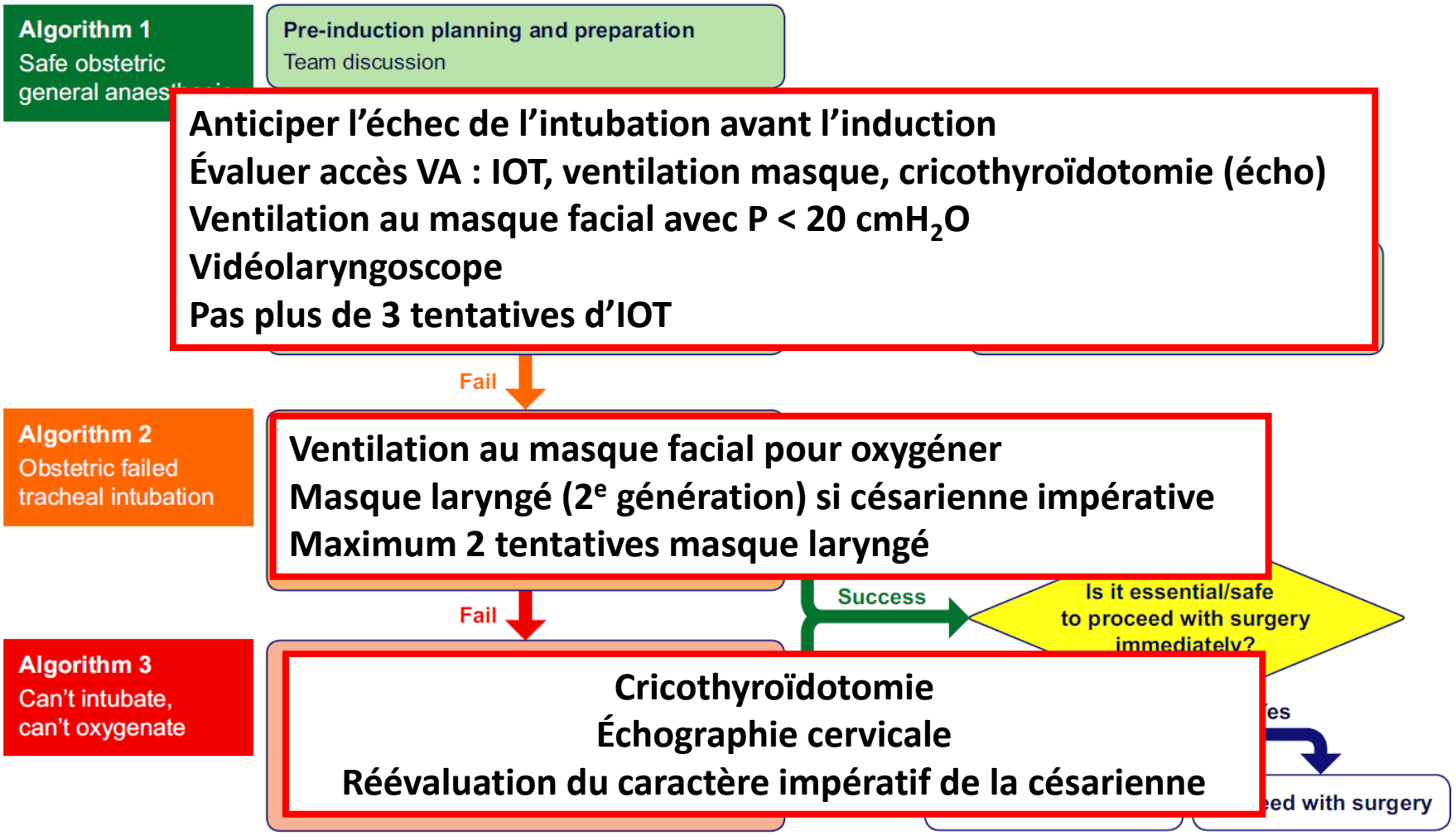
M. C. Mushambi,[1] S. M. Kinsella,[2] M. Popat,[3] H. Swales,[4] K. K. Ramaswamy,[5] A. L. Winton[6] and A. C. Quinn[7,8]

Master algorithm – obstetric general anaesthesia and failed tracheal intubation



Anaesthesia 2015, 70, 1286–1306

Master algorithm – obstetric general anaesthesia and failed tracheal intubation



Anaesthesia 2015, 70, 1286–1306

Table 1 – proceed with surgery?

	Factors to consider	WAKE			PROCEED
Before induction	Maternal condition	• No compromise	• Mild acute compromise	• Haemorrhage responsive to resuscitation	• Hypovolaemia requiring corrective surgery • Critical cardiac or respiratory compromise, cardiac arrest
	Fetal condition	• No compromise	• Compromise corrected with intrauterine resuscitation, pH < 7.2 but > 7.15	• Continuing fetal heart rate abnormality despite intrauterine resuscitation, pH < 7.15	• Sustained bradycardia • Fetal haemorrhage • Suspected uterine rupture
	Anaesthetist	• Novice	• Junior trainee	• Senior trainee	• Consultant/specialist
	Obesity	• Supermorbid	• Morbid	• Obese	• Normal
	Surgical factors	• Complex surgery or major haemorrhage anticipated	• Multiple uterine scars • Some surgical difficulties expected	• Single uterine scar	• No risk factors
	Aspiration risk	• Recent food	• No recent food • In labour • Opioids given • Antacids not given	• No recent food • In labour • Opioids not given • Antacids given	• Fasted • Not in labour • Antacids given
	Alternative anaesthesia • regional • securing airway awake	• No anticipated difficulty	• Predicted difficulty	• Relatively contraindicated	• Absolutely contraindicated or has failed • Surgery started
After failed intubation	Airway device/ ventilation	• Difficult facemask ventilation • Front-of-neck	• Adequate facemask ventilation	• First generation supraglottic airway device	• Second generation supraglottic airway device
	Airway hazards	• Laryngeal oedema • Stridor	• Bleeding • Trauma	• Secretions	• None evident

Anticiper l'échec de l'intubation avant l'induction

Anaesthesia 2015, 70, 1286–1306

Césarienne

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.

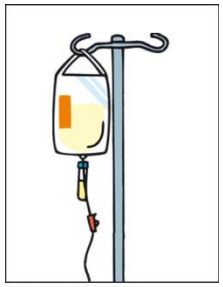
ANESTHESIOLOGY 2015; 122:736-45

Noradrénaline ?

Rachianesthésie →

Bupivacaïne 11 mg
Fentanyl 15 µg

Co remplissage cristalloïdes 2 litres



\+ 

n = 52

Phényléphrine 100 µg/ml

30 ml/h puis ajusté selon la PAS

\+ 

n = 49

Noradrénaline 5 µg/ml

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

ANESTHESIOLOGY 2015; 122:736-45

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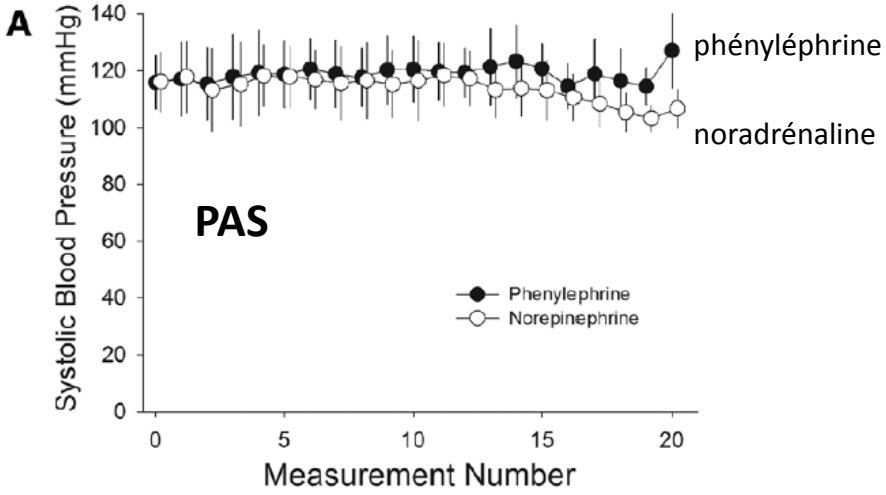
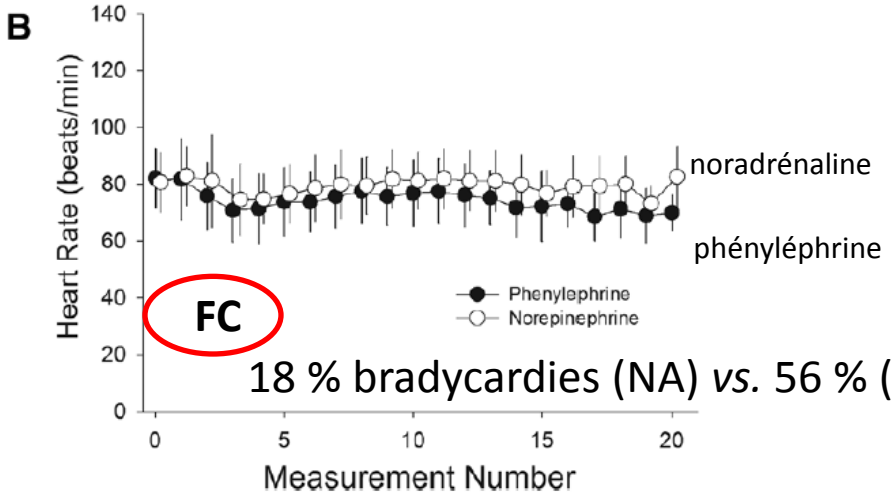
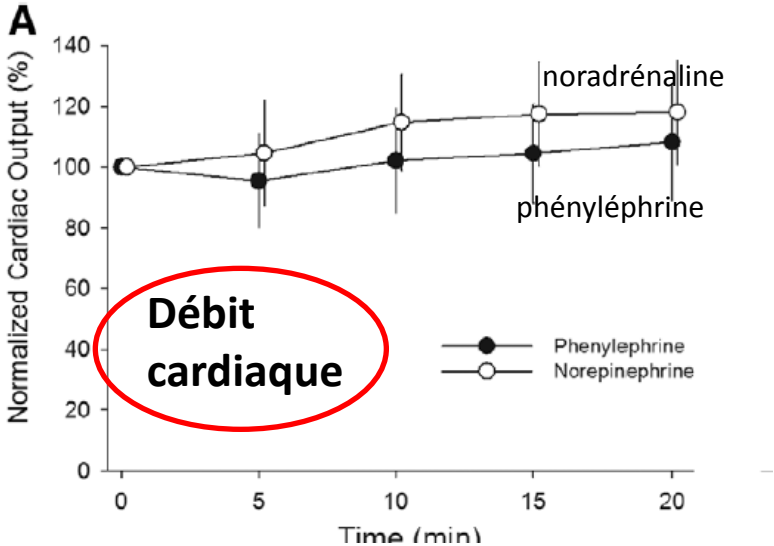
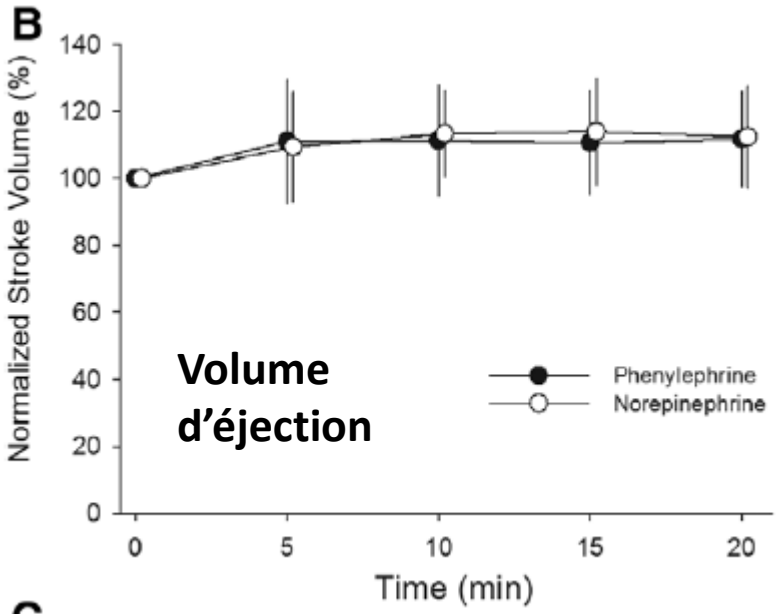
Noradrénaline 5 µg/ml *vs.* phényléphrine 100 µg/ml





18 % bradycardies (NA) *vs.* 56 % (PE)





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

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Table 2. Neonatal Outcome

	Norepinephrine Group	Phenylephrine Group	*P* Value
Birth weight (kg)	3.11 [2.85–3.37]	3.19 [3.04–3.36]	0.37
Apgar score at 1 min <8	0	0	
Apgar score at 5 min <8	0	0	
Umbilical arterial blood gases			
pH	7.30 [7.28–7.33]	7.29 [7.28–7.32]	0.45
Pco_2 (mmHg)	50 [48–56]	52 [48–56]	0.77
Po_2 (mmHg)	15 [13–18]	14 [11–16]	0.20
Base excess (mmol/l)	–2.0 [–3.7 to –1.0]	–2.4 [–4.2 to –0.8]	0.87
Oxygen content (ml/dl)	6.0 [4.4–7.7]	5.2 [3.8–7.0]	0.29
Umbilical venous blood gases			
pH	7.35 [7.34–7.37]	7.34 [7.32–7.36]	0.031
Pco_2 (mmHg)	41 [38–43]	41 [38–45]	0.69
Po_2 (mmHg)	27 [23–30]	26 [23–28]	0.23
Base excess (mmol/l)	–3.2 [–4.1 to –2.0]	–3.5 [–5.6 to –2.4]	0.06
Oxygen content (ml/dl	12.7 [11.3–14.4]	11.8 [9.6–13.7]	0.047

Values are median [interquartile range] or number.

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

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Table 2. Neonatal Outcome

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Birth we			0.37
Apgar sc			
Apgar sc			
Umbilica			
pH			0.45
Pco_2 (			0.77
Po_2 (m			0.20
Base e			0.87
Oxyge			0.29
Umbilica			
pH			0.031
Pco_2 (			0.69
Po_2 (m			0.23
Base e			0.06
Oxyge			0.047

Values are median [interquartile range] or number.

Noradrénaline aussi efficace que phényléphrine pour la prévention de l'hypotension,

avec moins de bradycardies,

fréquence cardiaque et débit cardiaques améliorés

Effet potentiellement bénéfique sur débit utéroplacentaire

Impacts sur paramètres néonatals à préciser

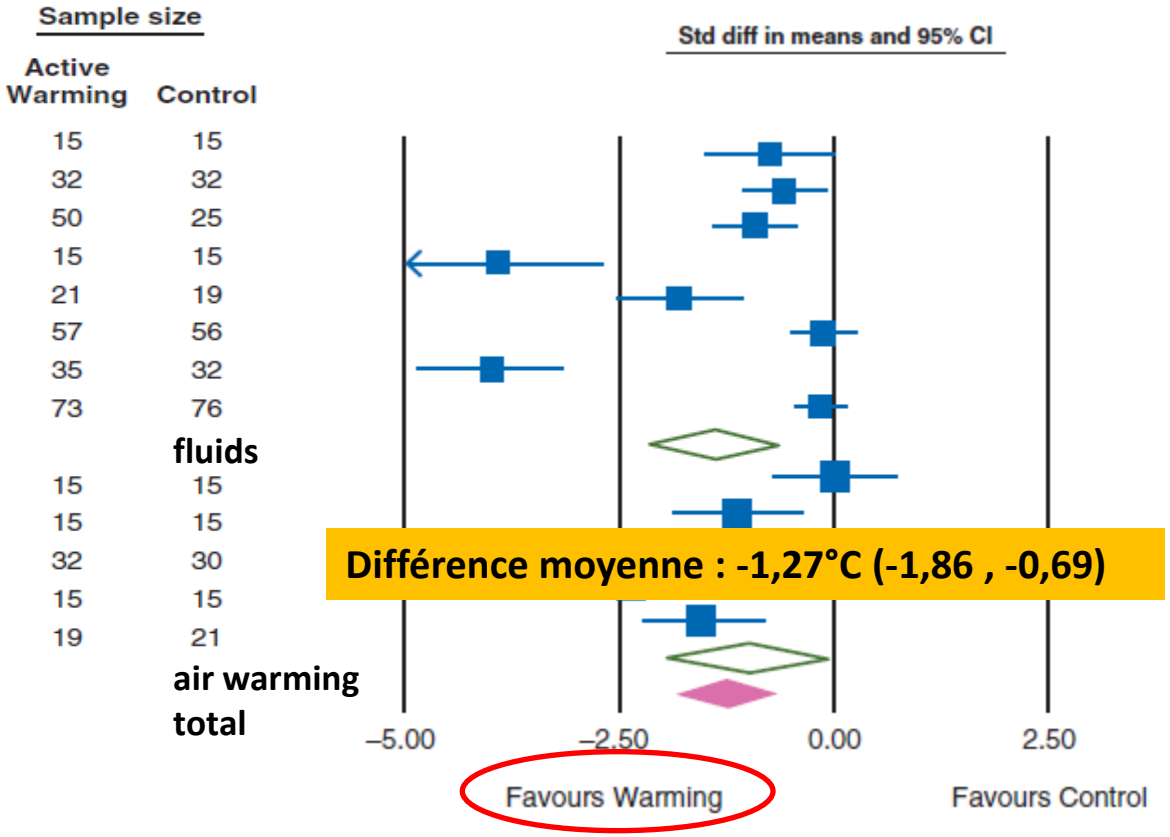
The Effect of patient warming during Caesarean delivery on maternal and neonatal outcomes: a meta-analysis

Faut-il réchauffer nos patientes ?

P. Sultan[1,*], A. S. Habib[2], Y. Cho[3] and B. Carvalho[4]

[1]Department of Anaesthesia, University College London Hospital, London, UK, [2]Department of Anesthesia, Duke University School of Medicine, Durham, NC, USA, [3]Pacific Alliance Medical Center, Los Angeles, CA, USA, and [4]Department of Anesthesia, Stanford University School of Medicine, Stanford, CA, USA

BJA



Différence moyenne : -1,27°C (-1,86 , -0,69)

13 RCT, 789 patients

Fig 2 Forest plots of the primary outcome of maximum core temperature change.

Bénéfice maternel (confort)

Bénéfice sur les paramètres néonatals à confirmer

Réchauffement actif des patientes opérées de césarienne devrait être encouragé

The Effect of Intrathecal Morphine Dose on Outcomes After Elective Cesarean Delivery: A Meta-Analysis

Pervez Sultan, MBChB, FRCA,* Stephen H. Halpern, MD,† Ellile Pushpanathan, MBBS, BMedSci, FRCA,‡ Selina Patel, MBBS, FRCA,* and Brendan Carvalho, MBBCh, FRCA§

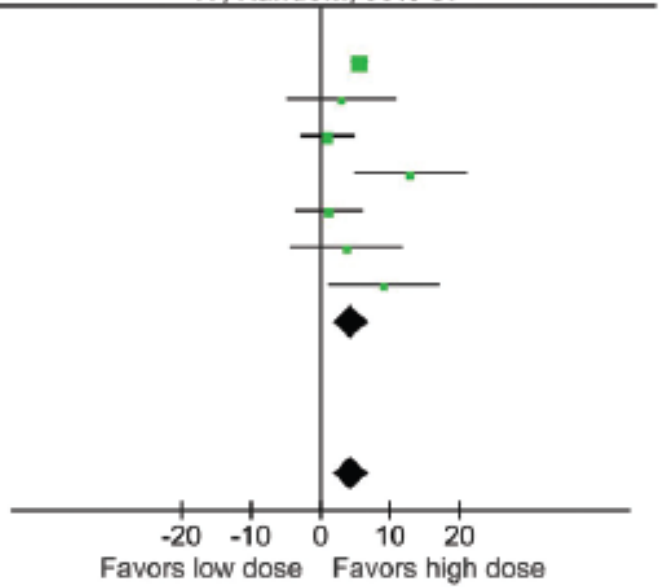
ANESTHESIA & ANALGESIA July 2016

11 RCT, 480 patientes

Dose morphine 50-100 µg *vs*. >100-250 µg, pas d'autre opiacé intrathécal

Durée analgésie

Study or Subgroup	High Dose Mean	SD	Total	Low Dose Mean	SD	Total	Weight	Mean Difference IV, Random, 95% CI
1.10.1 Time to first analgesic request								
Unlugenc (44)	15.2	2.95	30	9.7	1.95	30	31.8%	5.50 [4.23, 6.77]
Uchiyama (9)	28.3	14.7	20	25.3	14.5	40	8.5%	3.00 [-4.85, 10.85]
Milner (42)	20	7	25	19	7	25	19.7%	1.00 [-2.88, 4.88]
Jiang (41)	39.5	11.9	10	26.6	9.7	33	8.1%	12.90 [4.82, 20.98]
Girgin (10)	17.5	8.3	19	16.3	7	18	15.6%	1.20 [-3.74, 6.14]
Cohen (40)	13.8	9.3	11	10.05	10.5	12	8.1%	3.75 [-4.34, 11.84]
Abboud (39)	27.7	13.2	11	18.6	2.8	10	8.3%	9.10 [1.11, 17.09]
Subtotal (95% CI)			**126**			**168**	**100.0%**	**4.49 [1.85, 7.13]**
Heterogeneity: Tau² = 5.28; Chi² = 11.97, df = 6 (P = 0.06); I² = 50%								
Test for overall effect: Z = 3.34 (P = 0.0008)								
Total (95% CI)			**126**			**168**	**100.0%**	**4.49 [1.85, 7.13]**
Heterogeneity: Tau² = 5.28; Chi² = 11.97, df = 6 (P = 0.06); I² = 50%								
Test for overall effect: Z = 3.34 (P = 0.0008)								
Test for subgroup differences: Not applicable								



igure 4. Forest plot for the primary outcome of duration of analgesia. Mean difference is represented in hours.

Gain moyen de **4,5 h (1,9 – 7,1 h)**

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ANESTHESIA & ANALGESIA July 2016

11 RCT, 480 patientes

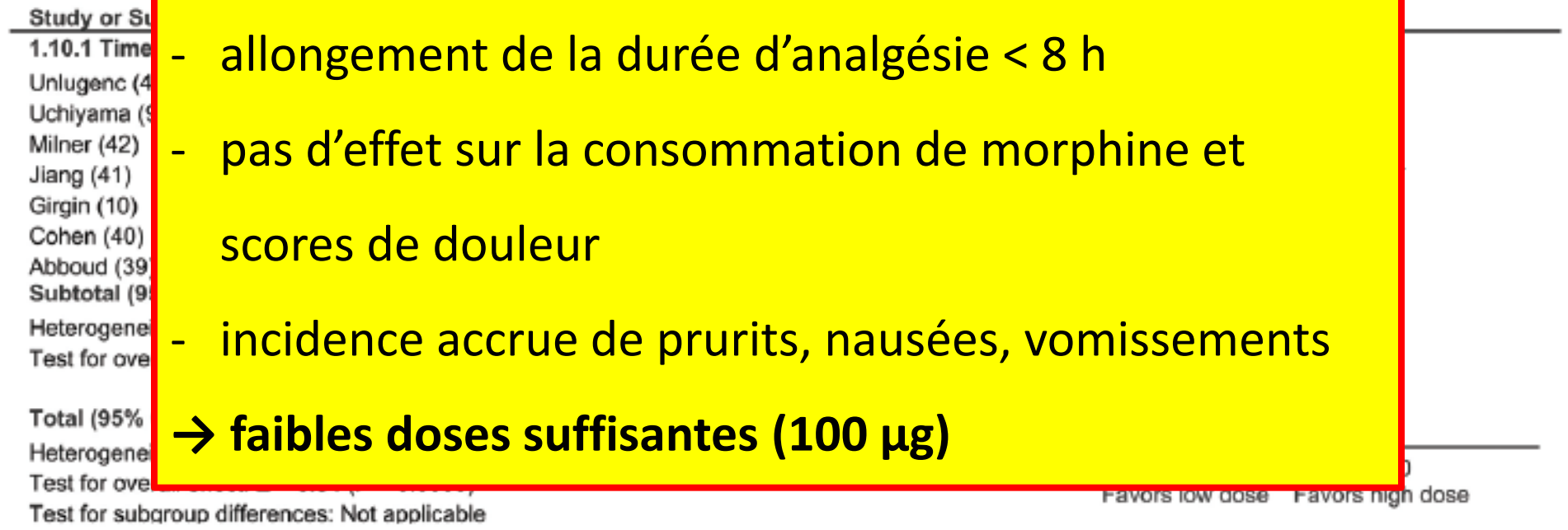
Dose morphine 50-100 µg *vs*. >100-250 µg, pas d'autre opiacé intrathécal

Duré

morphine intrathécale > 100 µg

- allongement de la durée d'analgésie < 8 h
- pas d'effet sur la consommation de morphine et scores de douleur
- incidence accrue de prurits, nausées, vomissements

→ faibles doses suffisantes (100 µg)



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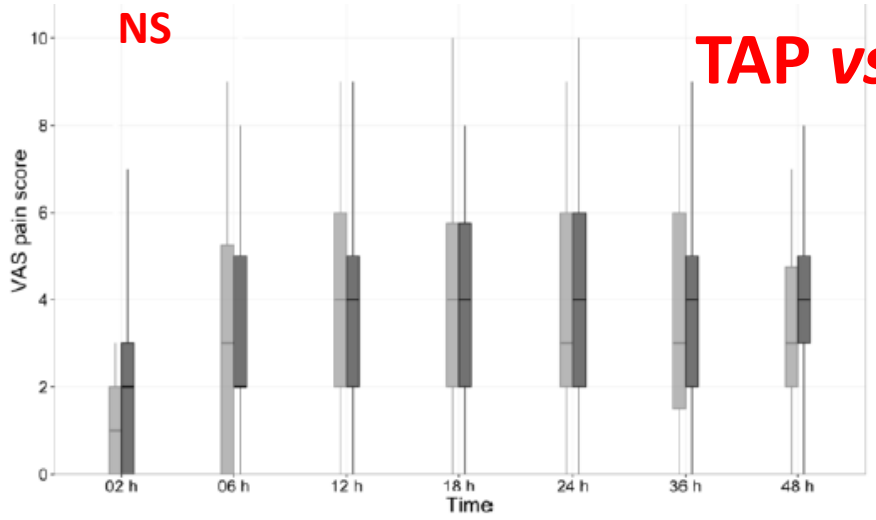
Gain moyen de **4,5 h (1,9 – 7,1 h)**

TAP *vs.* cathéter

NS



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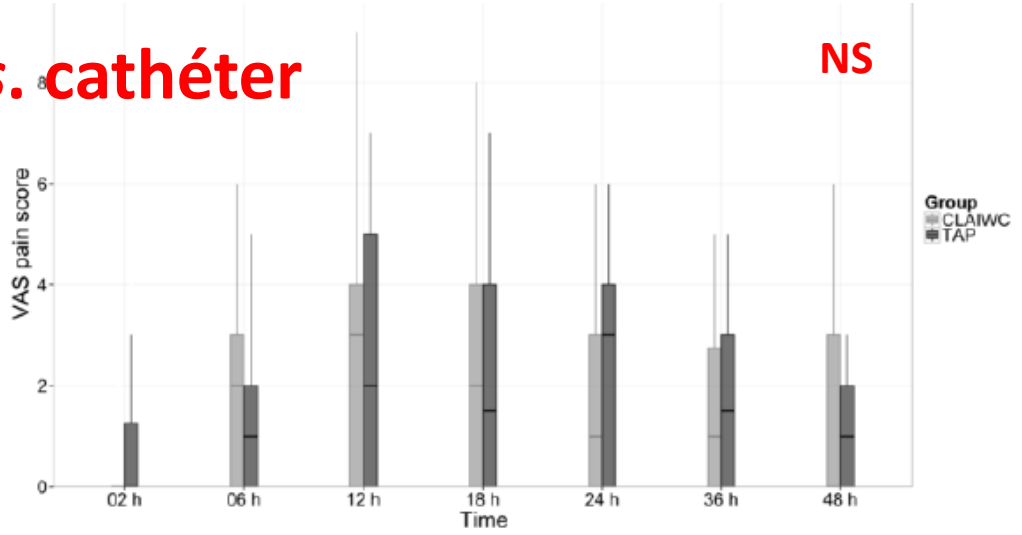
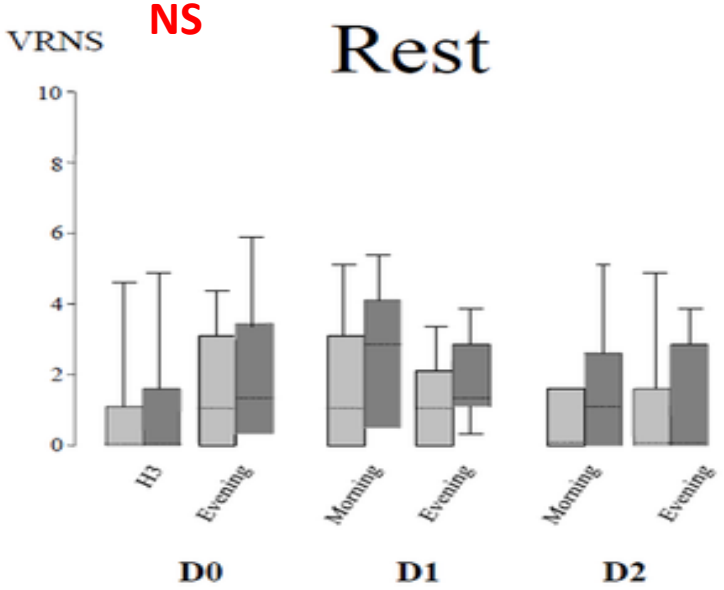
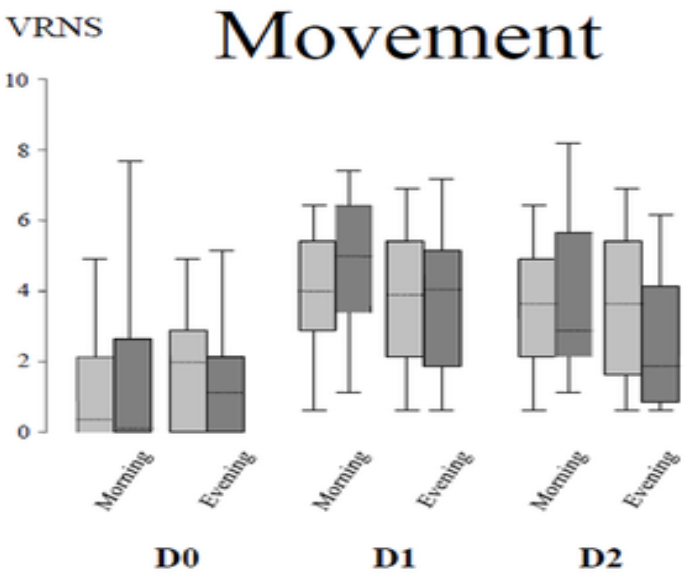


ACCPM 2016

NS





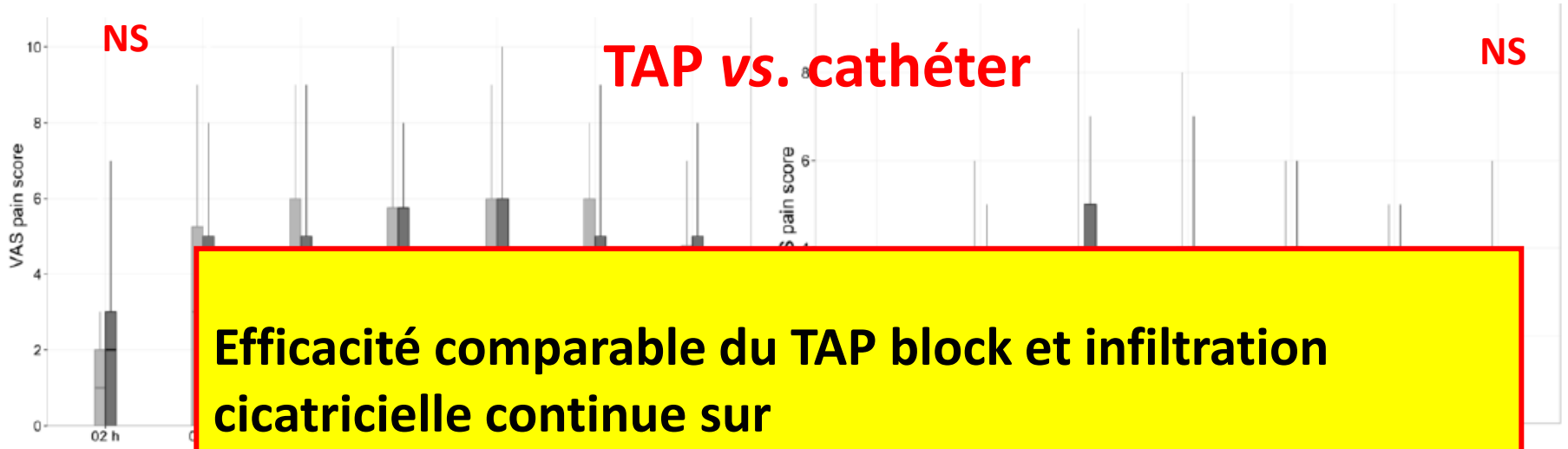
NS

PLoS One 2014

TAP *vs.* cathéter

NS

NS



Efficacité comparable du TAP block et infiltration cicatricielle continue sur

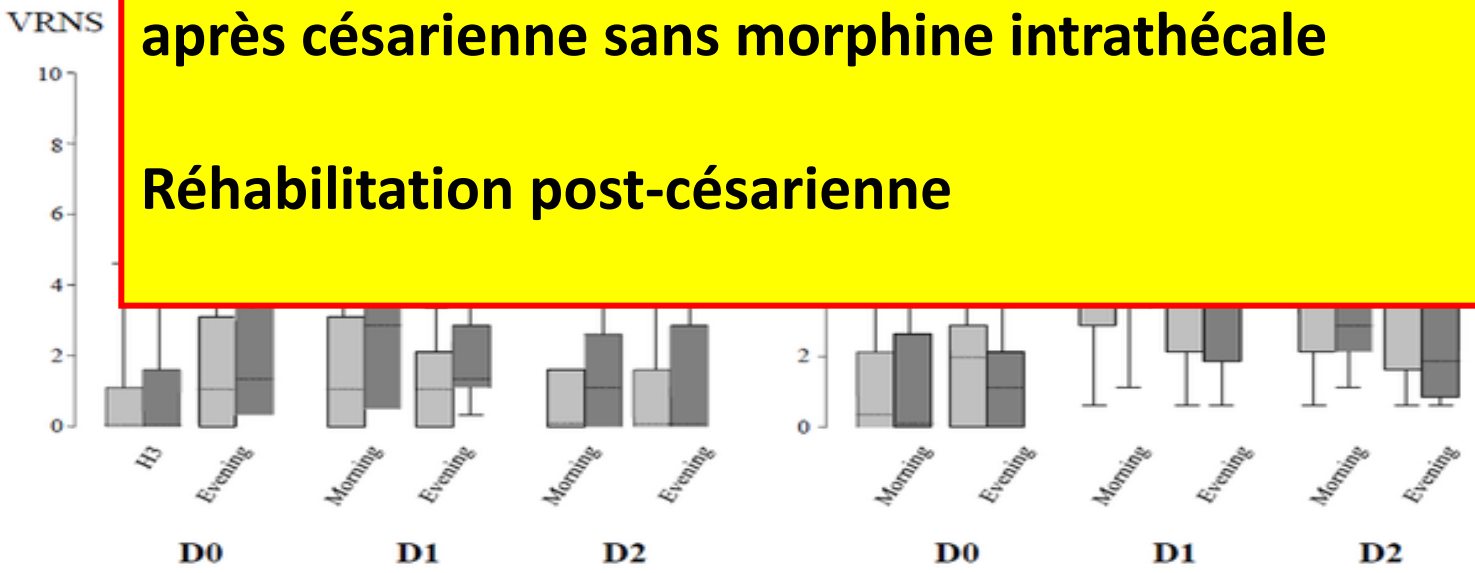
- **scores de douleur (repos, mouvement)**
- **consommation de morphine**

après césarienne sans morphine intrathécale

Réhabilitation post-césarienne

2016

S



PLoS One 2014

A Perioperative Course of Gabapentin Does Not Produce a Clinically Meaningful Improvement in Analgesia after Cesarean Delivery

Gabapentine

A Randomized Controlled Trial

David T. Monks, M.D., David W. Hoppe, M.D., Kristi Downey, M.Sc., Vibhuti Shah, M.D., Paul Bernstein, M.D., Jose C. A. Carvalho, M.D., Ph.D.

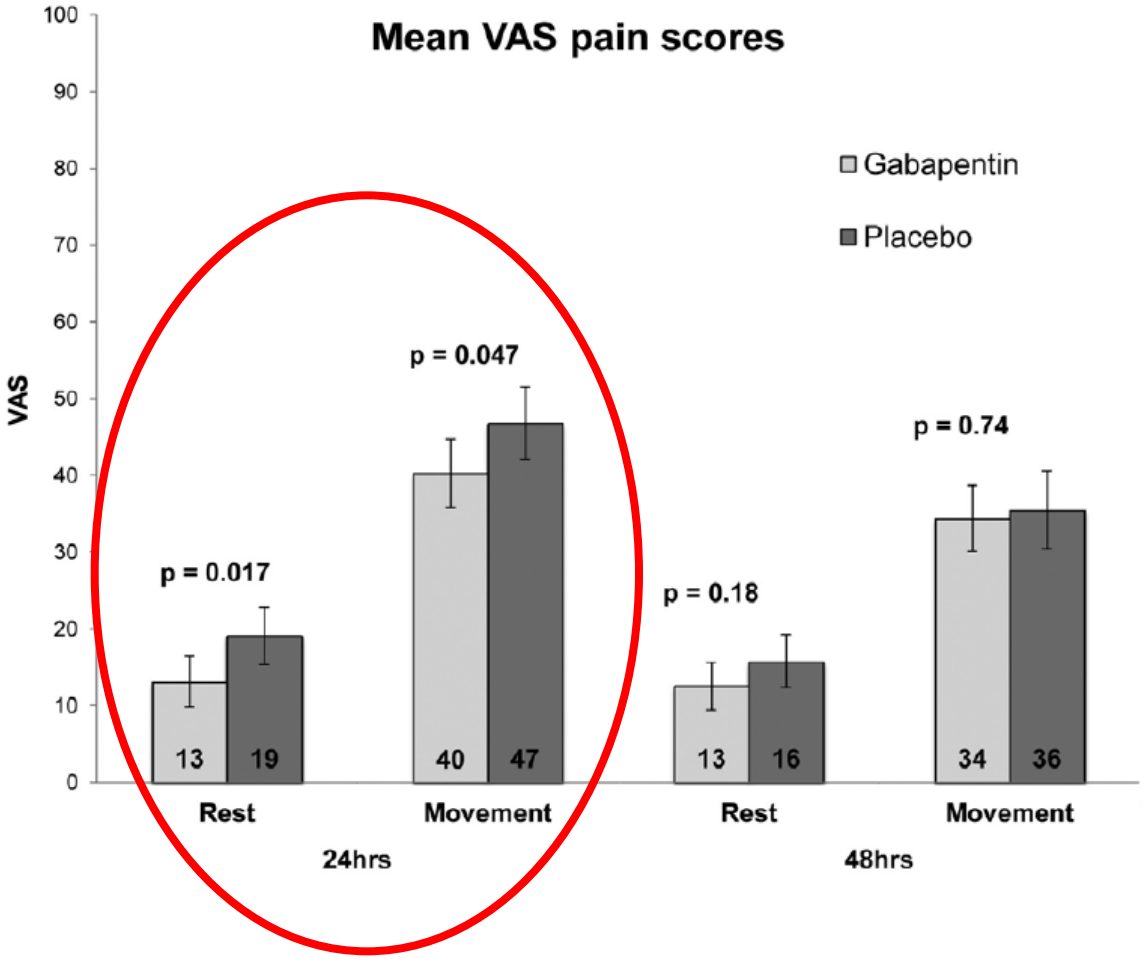
ANESTHESIOLOGY 2015; 123:320-6

RCT double aveugle, 197 patientes

Rachianesthésie avec morphine

Analgésie multimodale (AINS, paracétamol)

Gabapentine 600 mg (*vs.* Placebo) 1 h avant chirurgie puis 200 mg toutes les 8 h pendant 48 h



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ANESTHESIOLOGY 2015; 123:320-6

Gabapentine

Effet cliniquement modeste sur le score de douleur et la satisfaction à 24 h

Pas d'effet sur

- **la consommation d'opiacés**
- **la douleur chronique à 2 et 6 semaines**

4 fois plus de sédations sévères à 24 h et moins de prurit à 48 h

Pas de retentissements néonatals sévères

Évaluation à poursuivre chez patientes à risque de douleur sévère ?

RCT
pat

Rac

Ana
par

Gab
Pla
puis 200 mg toutes les 8 h
pendant 48 h

Analgésie du travail

Choix des parturientes ?

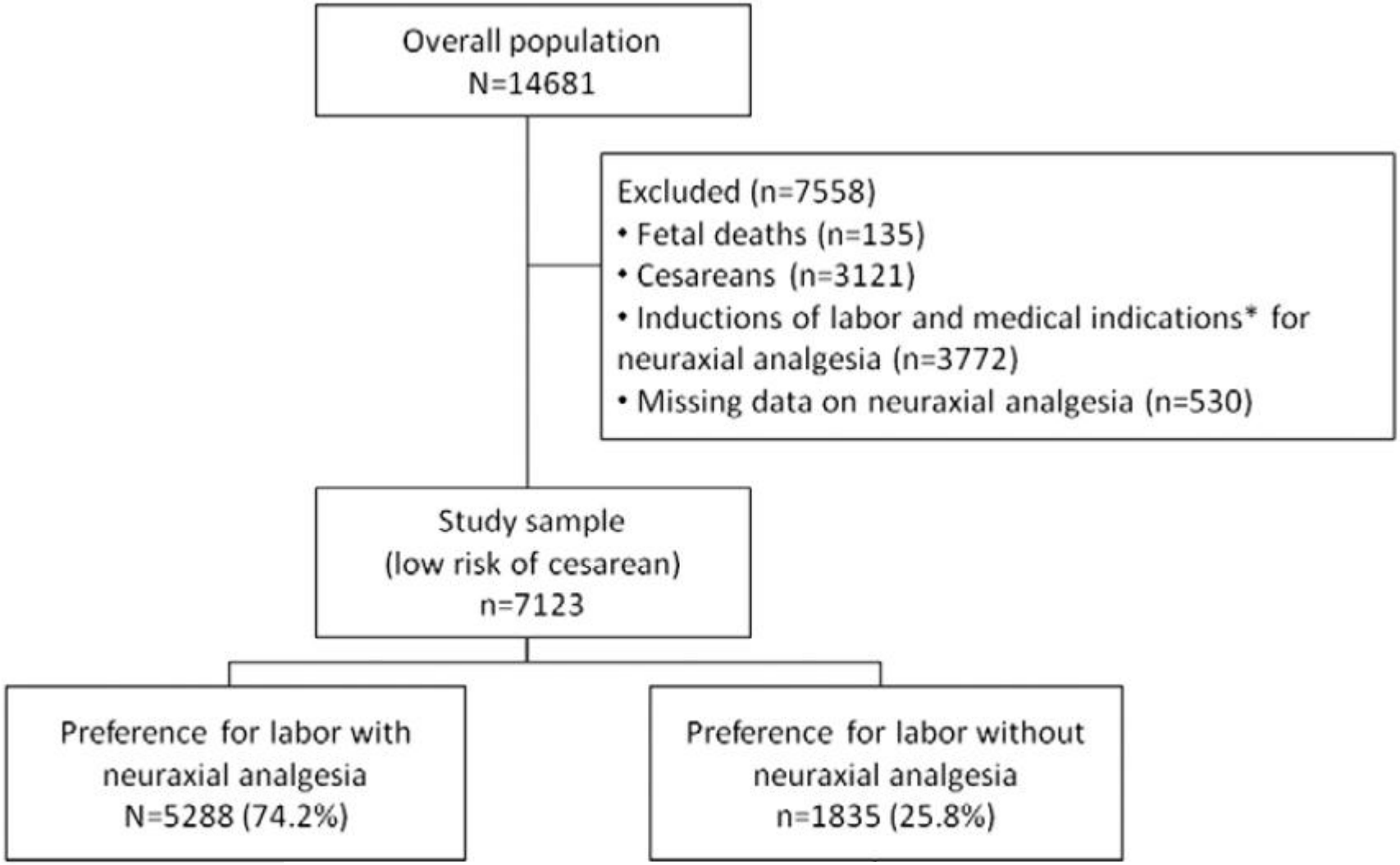
Initial Preference for Labor Without Neuraxial Analgesia and Actual Use: Results from a National Survey in France

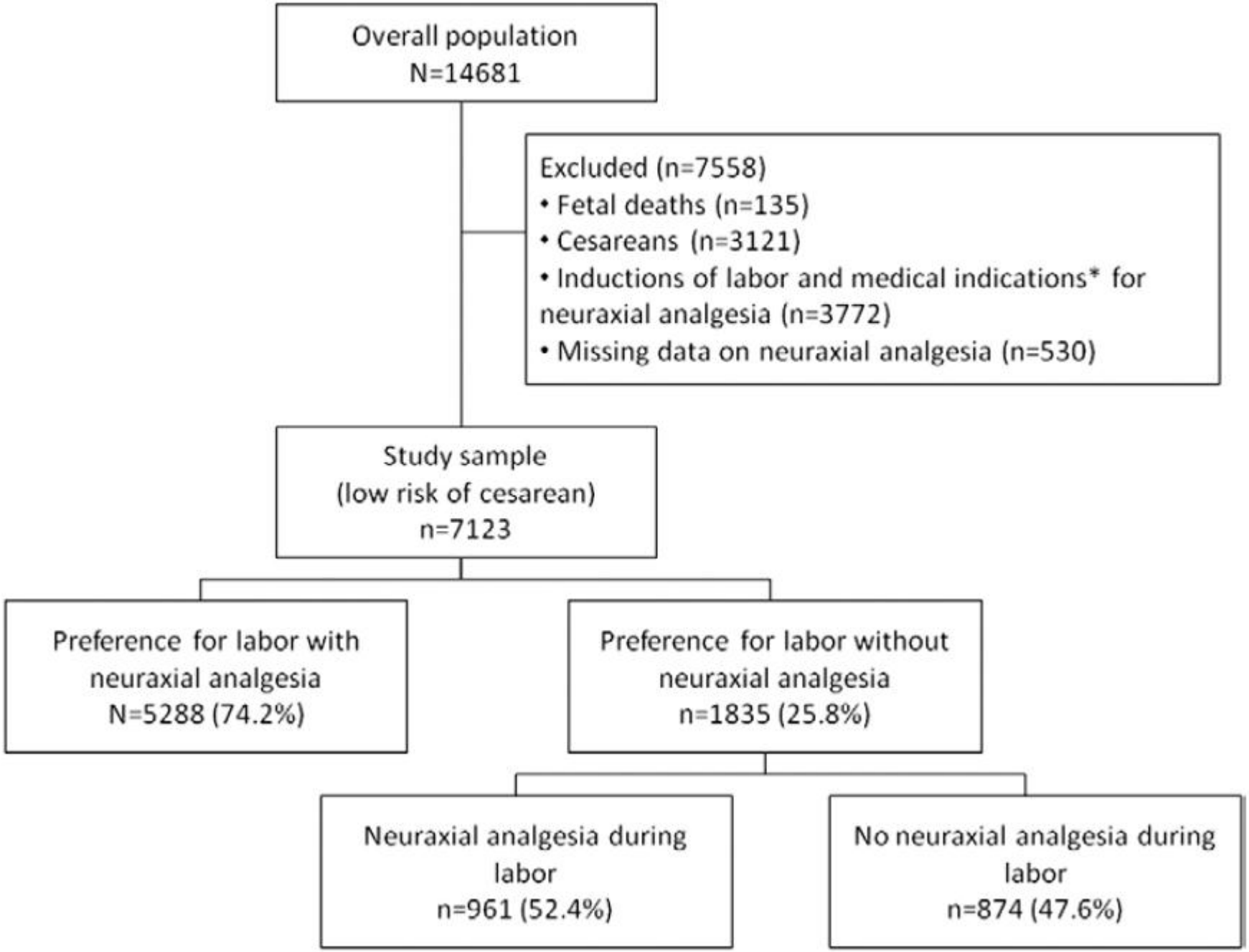
Laure Kpéa, RM, MPH,*† Marie-Pierre Bonnet, MD, PhD,*†‡ Camille Le Ray, MD, PhD,*†§
Caroline Prunet, MPH,*† Anne-Sophie Ducloy-Bouthors, MD,‖ and Béatrice Blondel, PhD*†

Anesth Analg 2015;121:759–66

Données issues de l'Enquête Nationale Périnatale de 2010

Analyse des patientes ayant accouchées par voie basse, après travail spontané


Overall population
N=14681
Excluded (n=7558)
• Fetal deaths (n=135)
• Cesareans (n=3121)
• Inductions of labor and medical indications* for neuraxial analgesia (n=3772)
• Missing data on neuraxial analgesia (n=530)
Study sample
(low risk of cesarean)
n=7123
Preference for labor with neuraxial analgesia
N=5288 (74.2%)
Preference for labor without neuraxial analgesia
n=1835 (25.8%)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Study sample
(low risk of cesarean)
n=7123
Preference for labor with neuraxial analgesia
N=5288 (74.2%)
Preference for labor without neuraxial analgesia
n=1835 (25.8%)
Neuraxial analgesia during labor
n=961 (52.4%)
No neuraxial analgesia during labor
n=874 (47.6%)

- **Facteurs associés au choix initial d'accouchement sans APD**
  - âge < 25 ans
  - parité ≥ 2
  - faible niveau d'études
  - nationalité étrangère
  - femme seule

- **Facteurs associés au recours à l'APD malgré le choix initial**
  - **oxytocine**
  - **nulliparité**
  - âge gestationnel > 41 semaines
  - **disponibilité de l'anesthésiste**
  - charge de travail des sages-femmes

Les raisons du changement de stratégie restent à évaluer

Définir une population cible pour renforcer l'information en consultation d'anesthésie / préparation à la naissance ?

Cochrane Library

Cochrane Database of Systematic Reviews

Hypnose

Hypnosis for pain management during labour and childbirth (Review)

Madden K, Middleton P, Cyna AM, Matthewson M, Jones L

2016

9 essais randomisés (2954 patientes)

Cochrane Library

Cochrane Database of Systematic Reviews

Hypnose

Hypnosis for pain management during labour and childbirth (Review)

Madden K, Middleton P, Cyna AM, Matthewson M, Jones L ***2016***

	RR ou DM (95 % CI)	
Recours à une analgésie pharmacologique	RR : 0,73 (0,57 – 0,94)	8 études, 2916 femmes
Sentiment de faire face	DM : 0,22 (-0,14 – 0,58)	1 étude, 420 femmes
AVB spontané	RR : 1,12 (0,96 – 1,32)	6 études , 2360 femmes
Satisfaction du soulagement de la douleur	DM : 0,41 (-0,45 – 1,27)	1 étude, 72 femmes

L'hypnose ne réduit pas le recours à l'analgésie péridurale

rémifentanil

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

BMJ 2015;350:h846 doi: 10.1136/bmj.h846 (Published 23 February 2015)

794 patientes

Measure (No of women per group)	Mean area under curve		
	Remifentanil	Epidural analgesia	Difference (95% CI)
With missing AUC values imputed			
Satisfaction with pain relief during active labour (687/671)	30.9	33.7	−2.8 (−6.9 to 1.3)
Satisfaction with pain relief after pain relief (447/347*)	25.6	36.1	−10.4 (−13.9 to −7.0)
Pain during active labour (687/671)	30.9	27.2	3.8 (0.92 to 6.6)
Pain score after pain relief (447/347*)	26.7	20.3	6.4 (3.5 to 9.4)
Missing AUC values not imputed			
Satisfaction with pain relief during active labour (394/290)	27.2	37.6	−10.3 (−14.6 to −6.1)
Satisfaction with pain relief after pain relief (316/198†*)	25.5	41.3	−15.7 (−20.2 to −11.2)
Pain during active labour (438/354)	29.7	24.9	4.9 (1.7 to 8.1)
Pain score after pain relief (345/220†)	27.8	21.0	7.0 (3.3 to 10.7)

Saturation %:				
<95%	154 (37)	37 (12)	1.63 (1.46 to 1.82)	<0.001
<92%	71 (18)	14 (5)	1.52 (1.35 to 1.71)	<0.001

A prospective observational study of maternal oxygenation during remifentanil patient-controlled analgesia use in labour*

A. A. Messmer,[1] J. M. Potts[2] and C. E. Orlikowski[3]

1 Consultant, Department of Anaesthesia, 3 Consultant, Department of Persistent Pain, Royal Hobart Hospital, Hobart, Tasmania, Australia
2 Statistician, The Analytical Edge, Hobart, Tasmania, Australia

Anaesthesia 2016, 71, 171–176

Désaturation (SpO_2 < 90 %) chez **70 %** des patientes

	All	Supplementary oxygen	Room air	
Duration of recordings; h	148.2	93 (63%)	55.2 (37%)	
Number of desaturation episodes	176	88 (50%)	88 (50%)	
Number of episodes per hour	1.2	0.9	1.6	***P* < 0,05**
Lowest S_pO_2 in each episode; %	87 (85–89 [68–89])	87 (85–89 [68–89])	86 (85–88 [73–89])	
Duration; s	16 (8–24 [8–104])	8 (8–16 [8–104])	16 (8–24 [8–72])	
Time spent with S_pO_2 < 90%; $min.h^{-1}$	0.35	0.25	0.5	

A prospective observational study of maternal oxygenation during remifentanil patient-controlled analgesia use in labour*

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Anaesthesia 2016, 71, 171–176

Désaturation (SpO_2 < 90 %) chez **70 %** des patientes

Analgésie par PCA rémifentanil moins efficace que l'APD

Surveillance nécessaire tout le long du travail

Oxygène ne réduit pas la gravité des épisodes hypoxiques

	All	Supplementary oxygen	Room air	
per hour				**< 0,05**
Lowest S_pO_2 in each episode; %	87 (85–89 [68–89])	87 (85–89 [68–89])	86 (85–88 [73–89])	
Duration; s	16 (8–24 [8–104])	8 (8–16 [8–104])	16 (8–24 [8–72])	
Time spent with S_pO_2 < 90%; $min.h^{-1}$	0.35	0.25	0.5	

Labor Analgesia and Cesarean Delivery

péridurale

An Individual Patient Meta-analysis of Nulliparous Women

Anesthesiology 2004; 100:142–8

Table 3. Labor Events in 2,703 Nulliparous Women Randomized to Epidural or Intravenous Meperidine Analgesia Using Intent-to-treat Analysis

Labor Event	Epidural Analgesia (n = 1,339)	Intravenous Meperidine Analgesia (n = 1,364)	*P* Value
Labor duration, first stage,* h	8.1 ± 5	7.5 ± 5	0.011
Labor duration, second stage,† min	60 ± 56	47 ± 57	<0.001
Oxytocin after analgesia	641 (48)	546 (40)	<0.001
Fever ≥ 38°C	309 (23)	94 (7)	<0.001

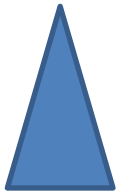
Data are presented as n (%) or mean ± SD.

* First stage-initiation of analgesia to complete cervical dilation. † Second stage-complete cervical dilation to delivery.

Table 4. Method of Delivery in 2,703 Nulliparous Women Randomized to Epidural or Intravenous Meperidine Analgesia Using Intent-to-treat Analysis

Method of Delivery	Epidural Analgesia (n = 1,339)	Intravenous Meperidine Analgesia (n = 1,364)	*P* Value
Spontaneous vaginal	1,027 (77)	1,122 (82)	<0.001
Forceps	172 (13)	101 (7)	<0.001
Cesarean	140 (10.5)	141 (10.3)	0.920
Dystocia	109 (8.1)	123 (9.0)	0.091
Nonreassuring FHR	32 (2.4)	18 (1.3)	—

Bolus manuel



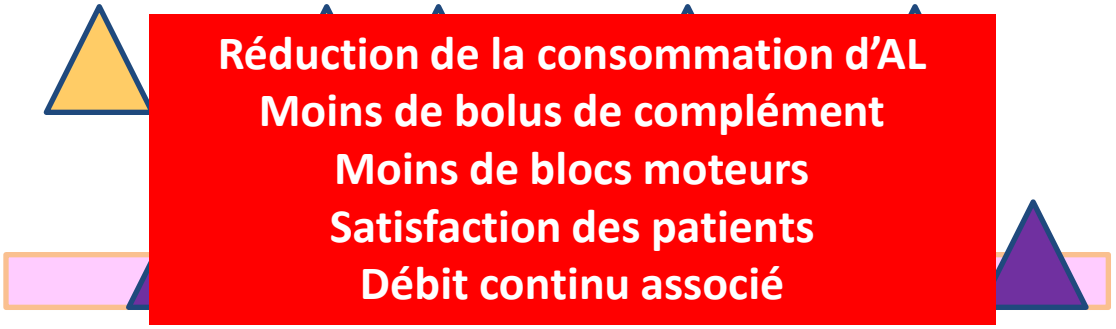
Efficace
Personnel impliqué
Effets on/off

Perfusion continue

Bolus de complément nécessaires
Blocs moteurs

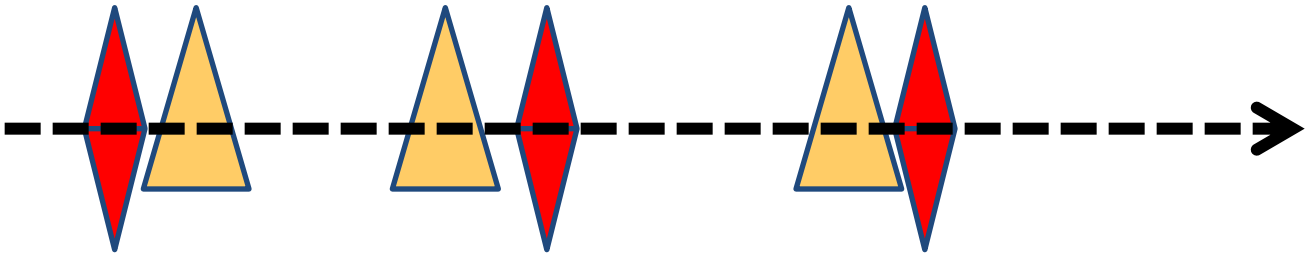
PCEA

PCEA + débit continu



Réduction de la consommation d'AL
Moins de bolus de complément
Moins de blocs moteurs
Satisfaction des patients
Débit continu associé

PIEB



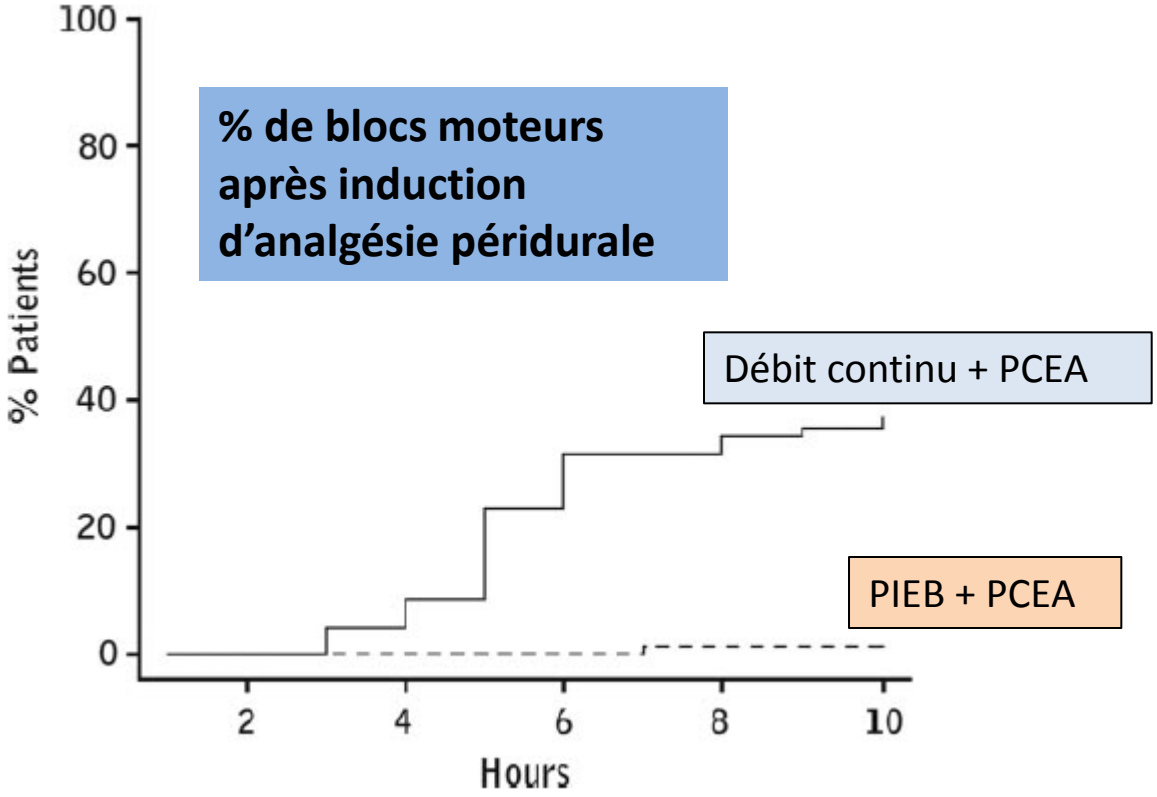
Programmed Intermittent Epidural Bolus Versus Continuous Epidural Infusion for Labor Analgesia: The Effects on Maternal Motor Function and Labor Outcome. A Randomized Double-Blind Study in Nulliparous Women

Giorgio Capogna, MD, Michela Camorcia, MD, Silvia Stirparo, MD, and Alessio Farcomeni, PhD

PIEB

Anesth Analg 2011

% de blocs moteurs après induction d'analgésie péridurale



20 % extraction instrumentale si débit continu *vs*. 7 % si PIEB
OR = 2,9 (1,1 – 7,9)

Capogna et coll. Anesth Analg 2011

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

PIEB

C.P. McKenzie, B. Cobb, E.T. Riley, B. Carvalho
Department of Anesthesia, Stanford University School of Medicine, Stanford, CA, USA

International Journal of Obstetric Anesthesia (2016)

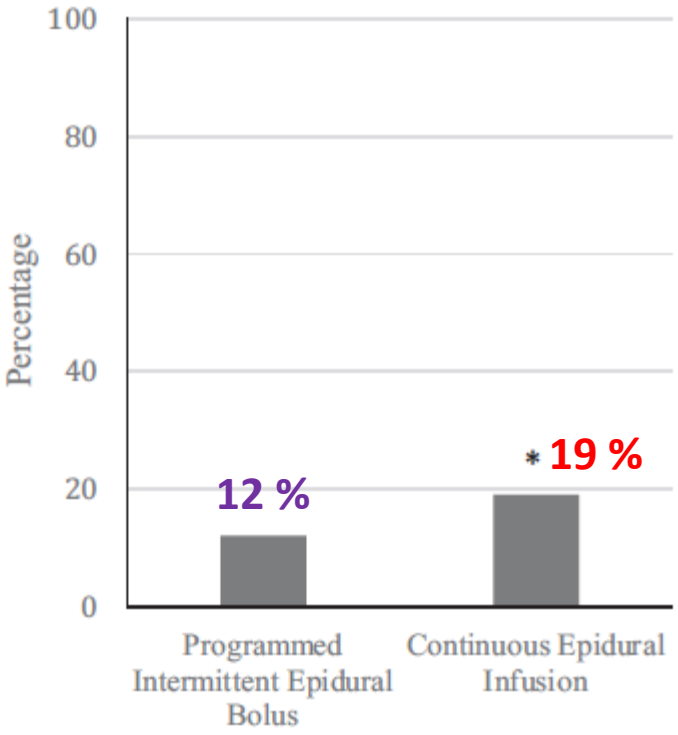


Fig. 2 Proportion of patients requiring manual, clinician-administered rescue boluses during labor analgesia receiving either CEI or PIEB. $^{*}P=0.012$

709 patientes

PIEB *vs*. débit continu (+ PCEA)

-moins de recours aux boli complémentaires

↘ charge de travail

-moins de péridurales latéralisées

-efficacité analgésique comparable

Pas de différence sur taux d'extraction instrumentale

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

PIEB

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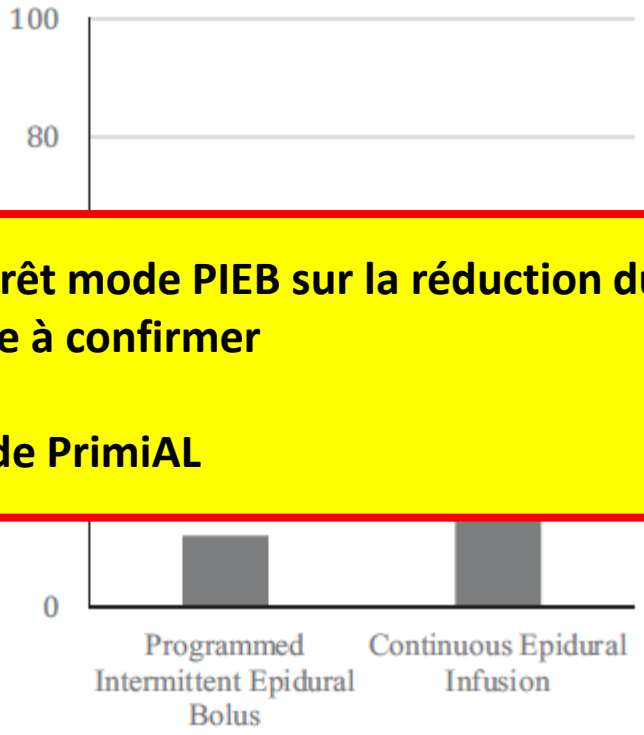


Fig. 2 Proportion of patients requiring manual, clinician-administered rescue boluses during labor analgesia receiving either CEI or PIEB. *P=0.012

709 patientes

PIEB *vs*. débit continu (+ PCEA)

Intérêt mode PIEB sur la réduction du risque d'extraction instrumentale reste à confirmer

Étude PrimiAL

es

-efficacité analgésique comparable

Pas de différence sur taux d'extraction instrumentale

Thromboprophylaxie

Evolution de la mortalité maternelle par causes, effectifs, % et taux pour 100 000 NV, France entière de 2001-03 à 2007-09

Causes de décès	2001-2003			2004-2006			2007-2009[1]		
	n	%	Taux	n	%	Taux	n	%	Taux
Directes	167	66,8	7,0	145	68,1	6,0	133	60,5	5,3
Hémorragies	61	24,4	2,6	55	25,8	2,3	42	19,1	1,6
Embolies amniotiques	23	9,2	1,0	34	16	1,4	19	8,6	0,8
Thrombo-embolies veineuses	26	10,4	1,1	20	9,4	0,8	28	12,7	1,1
Hypertension artérielle	29	11,6	1,2	17	8	0,6	22	10,0	0,9
Infections	12	4,8	0,5	7	3,3	0,3	6	2,7	0,2
Complications d'anesthésie	4	1,6	0,02	3	1,4	0,1	2	0,9	0,1
Autres directes	12	4,8	0,5	9	4,2	0,4	14	6,4	0,6
Indirectes	72	28,8	3,0	57	26,8	2,3	78	35,5	3,2
Maladies cardiaques	15	6,0	0,6	20	9,4	0,8	29	13,2	1,2
Accident vasculaire cérébral	27	10,8	1,1	16	7,5	0,7	19	8,6	0,8
Autres	30	12,0	1,2	21	9,9	0,9	30	13,6	1,3
Causes inconnues	11	4,0	0,5	11	5,1	0,5	9	4,1	0,4
Toutes	250	100,0	10,4	213	100,0	8,7	220	100,0	8,9

Rapport CNEMM 2013, mortalité maternelle 2007-2009

Annales Françaises d'Anesthésie et de Réanimation 24 (2005) 952–976

PRATIQUE CLINIQUE

SFAR
Société Française d'Anesthésie et de Réanimation

Prévention de la maladie thromboembolique veineuse périopératoire et obstétricale

Recommandations pour la pratique clinique.
Texte court 2005

Société française d'anesthésie et de réanimation

Royal College of Obstetricians & Gynaecologists

Reducing the Risk of Venous Thromboembolism during Pregnancy and the Puerperium

Green-top Guideline No. 37a
April 2015

Recommandations pour la pratique clinique

Post-partum

Élaborées par le Collège national des gynécologues et obstétriciens français

2015

C N G O F
Collège National des Gynécologues et Obstétriciens Français

Recommandations après césarienne

	SFAR 2005	RCOG 2015
Césarienne programmée isolée	BAT seul	BAT seul
C. Programmée + 1 facteur mineur	BAT seul	Au moins 10 jours
C. Programmée + 2 facteurs mineurs	6-8 semaines	Au moins 6 semaines
C. Urgente isolée	1 à 6-8 semaines	Au moins 10 jours
C. Urgente + 1 facteur mineur	6-8 semaines	Au moins 10 jours
Haut risque	6-8 semaines	Au moins 6 semaines

Recommandations après césarienne

	SFAR 2005	RCOG 2015	CNGOF 2015
Césarienne programmée isolée	BAT seul	BAT seul	BAT seul
C. Programmée + 1 facteur mineur	BAT seul	Au moins 10 jours	BAT seul
C. Programmée + 2 facteurs mineurs	6-8 semaines	Au moins 6 semaines	7-14 jours
C. Urgente isolée	1 à 6-8 semaines	Au moins 10 jours	BAT seul
C. Urgente + 1 facteur mineur	6-8 semaines	Au moins 10 jours	7-14 jours
Haut risque	6-8 semaines	Au moins 6 semaines	6 semaines

Recommandations après césarienne

Thrombo-embolie = 2e cause de mortalité maternelle directe en France

Nouvelles recommandations britanniques / CNGOF

Évaluation du risque de MTEV en début de grossesse, réajusté en cours de grossesse et en post-partum

Nécessité d'appropriation des recommandations en salle d'accouchement

		F 2015
Césarienne programmée		seul
C. Programmé facteur mineu		seul
C. Programmé facteurs mine		jours

☐ **Bas de contention avec lever précoce**
☐ **LOVENOX** .....mL/j en sous cutané pendant .....semaine(s) à partir de .....H
(≥ 6 H après rachianesthésie ou ablation du cathéter péridural)
☐ NGP à J1 puis plaquettes 2 fois par semaine (et 1 fois par semaine après 3 semaines)

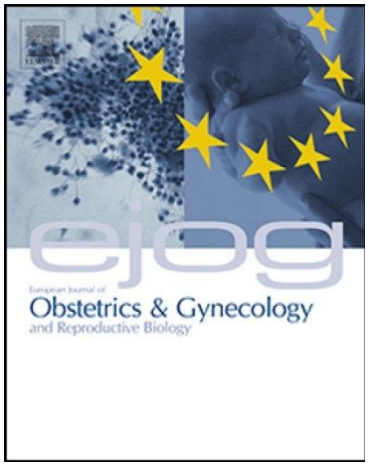
FDR	Age > 35 ans = 1	HTA = 1 Alitement prolongé =1	César en urgence = 3
	Poids > 80 Kg ou IMC> 30 = 1	Varices = 1 Parité > 4 = 1	Atcd MTVE avec facteur déclenchant = 3
	Pré éclampsie = 1 Césarienne prophylactique = 1	Mutation V leiden, prothrombine, Deficit AT, SAPL sans ATCD de MTEV =3	Atcd MVTE et thrombophilie = 3 Pathologie thrombogène (MICI , Sd nephrotique)= 1
	Score 0-2 : Risque faible: BAT	**Score ≥ 3 : Risque moderé : BAT +**	**thromboprophylaxie 6 à 8 semaines**

Hémorragie post-partum

Recommandations pour la pratique clinique

Les hémorragies du post-partum

Élaborées par le Collège national des gynécologues et obstétriciens français



Postpartum hemorrhage: guidelines for clinical practice from the French College of Gynaecologists and Obstetricians (CNGOF) in collaboration with the French Society of Anesthesiology and Intensive Care (SFAR)

Loïc Sentilhes [a,*], Christophe Vayssière [b,c], Catherine Deneux-Tharaux [d], Antoine Guy Aya [e,f], Françoise Bayoumeu [g], Marie-Pierre Bonnet [d,h], Rachid Djoudi [i], Patricia Dolley [j], Michel Dreyfus [j,k], Chantal Ducroux-Schouwey [l], Corinne Dupont [m,n], Anne François [o], Denis Gallot [p,q], Jean-Baptiste Haumonté [r], Cyril Huissoud [m,s], Gilles Kayem [t], Hawa Keita [u,v], Bruno Langer [w], Alexandre Mignon [g], Olivier Morel [x], Olivier Parant [y,z,A], Jean-Pierre Pelage [B], Emmanuelle Phan [l], Mathias Rossignol [C], Véronique Tessier [D,E], Frédéric J. Mercier [F,G,H], François Goffinet [d,E,I]

European Journal of Obstetrics & Gynecology and Reproductive Biology

Fibrinogen plasma concentration before delivery is not associated with postpartum haemorrhage: a prospective observational study

O. Karlsson[1,*], A. Jeppsson[2,3], M. Thornemo[4], H. Lafrenz[5], M. Rådström[6] and M. Hellgren[7,8,9]

BJA

British Journal of Anaesthesia 115 (1): 99–104 (2015)

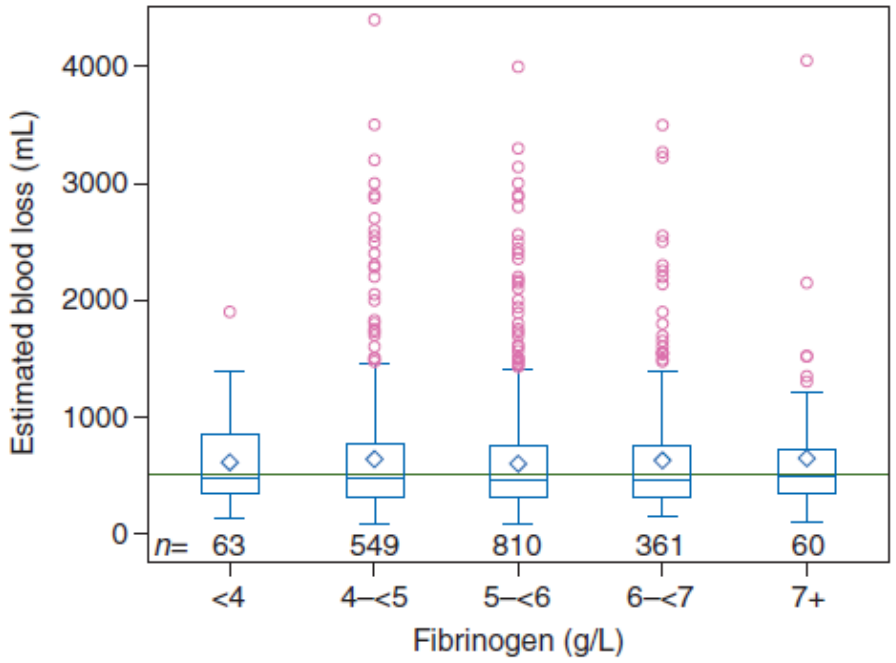


Fig 2 Fibrinogen concentration and estimated blood loss during delivery in 1951 women. Box-whisker plots with median (line), mean (square), 25–75% percentile. The whiskers are drawn to 1.5 of interquartile range. Dots are outliers. The green line shows estimated blood loss of 500 ml.

1843 patientes
250 avec hémorragie > 1000 ml

Table 3 Fibrinogen concentration and estimated blood loss in the subgroups that were independent predictors of EBL >1000 ml. Data are shown as mean (SD) (fibrinogen) or median (range) (blood loss)

Subgroup	*n*	Fibrinogen (g litre^{-1})	Estimated blood loss ml
Oxytocin stimulation	1082	5.38 (SD 0.85)	500 (85–4400)
Instrumental delivery	136	5.53 (SD 0.89)	500 (140–4400)
Caesarean section	206	5.47 (SD 0.94)	700 (160–3000)
Postpartum exploration	93	5.34 (SD 0.83)	1600 (100–4400)
Remaining population	771	5.27 (SD 0.79)	400 (70–2440)

Pas d'intérêt prédictif du dosage de fibrinogène à l'admission en salle

Pre-emptive treatment with fibrinogen concentrate for postpartum haemorrhage: randomized controlled trial†

A. J. Wikkelsø[1*], H. M. Edwards[2], A. Afshari[3], J. Stensballe[4], J. Langhoff-Roos[5], C. Albrechtsen[3], K. Ekelund[3], G. Hanke[3], E. L. Secher[3], H. F. Sharif[5], L. M. Pedersen[6], A. Troelstrup[6], J. Lauenborg[7], A. U. Mitchell[1], L. Fuhrmann[1], J. Svare[2], M. G. Madsen[8], B. Bødker[9], A. M. Møller[1] and FIB-PPH trial group

BJA

British Journal of Anaesthesia **114** (4): 623–33 (2015)

Bénéfice d'une correction précoce de l'hypofibrinogénémie ?

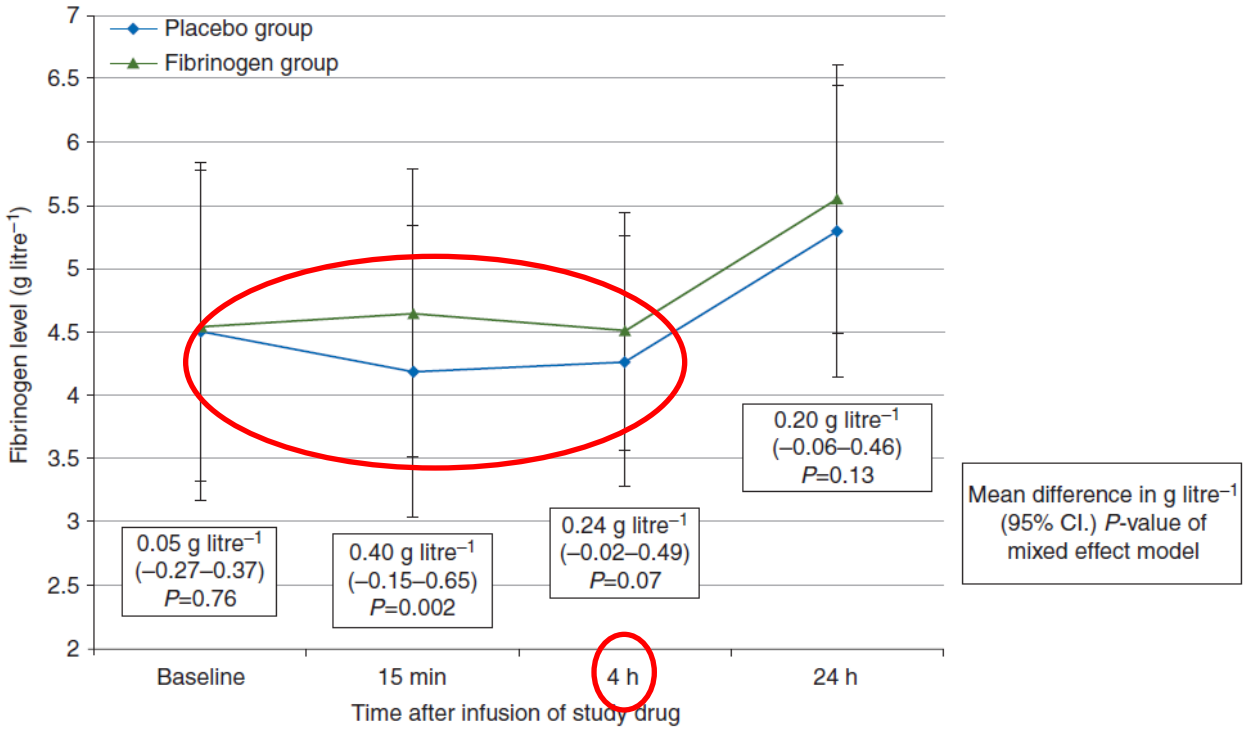


Fig 2 Mean fibrinogen concentrations in placebo and fibrinogen groups from baseline to 24 h after study drug administration, with whiskers indicating standard deviation. Mean difference of the fibrinogen concentration between the fibrinogen and placebo group is given below at each time point from baseline to 24 h after the study drug administration, with 95% confidence interval (CI) given in parenthesis and *P*-value.

Pre-emptive treatment with fibrinogen concentrate for postpartum haemorrhage: randomized controlled trial†

A. J. Wikkelsø[1*], H. M. Edwards[2], A. Afshari[3], J. Stensballe[4], J. Langhoff-Roos[5], C. Albrechtsen[3], K. Ekelund[3], G. Hanke[3], E. L. Secher[3], H. F. Sharif[5], L. M. Pedersen[6], A. Troelstrup[6], J. Lauenborg[7], A. U. Mitchell[1], L. Fuhrmann[1], J. Svare[2], M. G. Madsen[8], B. Bødker[9], A. M. Møller[1] and FIB-PPH trial group

BJA

British Journal of Anaesthesia **114** (4): 623–33 (2015)

Bénéfice d'une correction précoce de l'hypofibrinogénémie ?

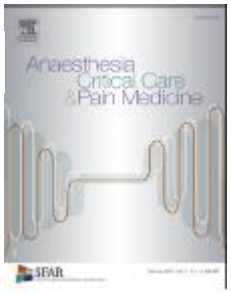
Table 2 Primary and secondary outcomes, intention to treat. RBC, red blood cell. Data are presented as the median [IQR] or *n* (%). *One hundred and forty-eight values are missing (61%). †Mean difference with 95% confidence interval (CI; Student's *t*-test). ‡Wilcox rank sum test

Outcome	Fibrinogen (*n*=123)	Placebo (*n*=121)	Relative risk (95% CI)	*P*-value
Primary outcome				
Need for RBC transfusion (during the 6 week period postpartum)	25 (20.3%)	26 (21.5%)	0.95 (0.58–1.54)	0.88
Secondary outcomes				
Estimated blood loss after study drug (ml)	1700 [1500–2000]	1700 [1400–2000]	66 [−78; 210]†	0.37
Need for RBC transfusion (up to 4 h after study drug)	4 (3.3%)	10 (8.3%)	0.39 (0.13–1.22)	0.11
Need for RBC transfusion (up to 24 h after study drug)	14 (11.4%)	19 (15.7%)	0.72 (0.38–1.38)	0.35
Need for RBC transfusion (up to 7 days after study drug)	25 (20.3%)	26 (21.5%)	0.95 (0.58–1.54)	0.88
Total amount of blood transfused	0 [0,0]	0 [0,0]	‡	0.83
Range [min, max]	[0,7]	[0,4]		
Severe PPH*	20 (40.0%)	24 (52.2%)	0.77 (0.49–1.19)	0.31
Death	0 (0.0%)	0 (0.0%)	–	
Haemostatic intervention	0 (0.0%)	0 (0.0%)	–	
Transfusion of ≥4 units of RBCs	8 (6.5%)	3 (2.5%)	2.62 (0.71–9.65)	0.22
Decrease in haemoglobin >40 g litre^{-1}*	20 (40.0%)	24 (52.2%)	0.77 (0.49–1.19)	0.31
Rebleeding	2 (1.6%)	2 (1.7%)	0.98 (0.14–6.87)	1.00
Lowest haemoglobin <58 g litre^{-1}	1 (0.8%)	5 (4.1%)	0.20 (0.02–1.66)	0.12

Fibrinogen concentrate as a treatment for postpartum haemorrhage-induced coagulopathy: A study protocol for a randomised multicentre controlled trial. The fibrinogen in haemorrhage of DELivery (FIDEL) trial

Anne-Sophie Ducloy-Bouthors [a,*], Alexandre Mignon [b], Cyril Huissoud [c], Jean-Marie Grouin [d], Frédéric J. Mercier [e]

Anaesth Crit Care Pain Med 35 (2016) 293–298



Bénéfice d'une correction précoce de l'hypofibrinogénémie ?

RCT multicentrique

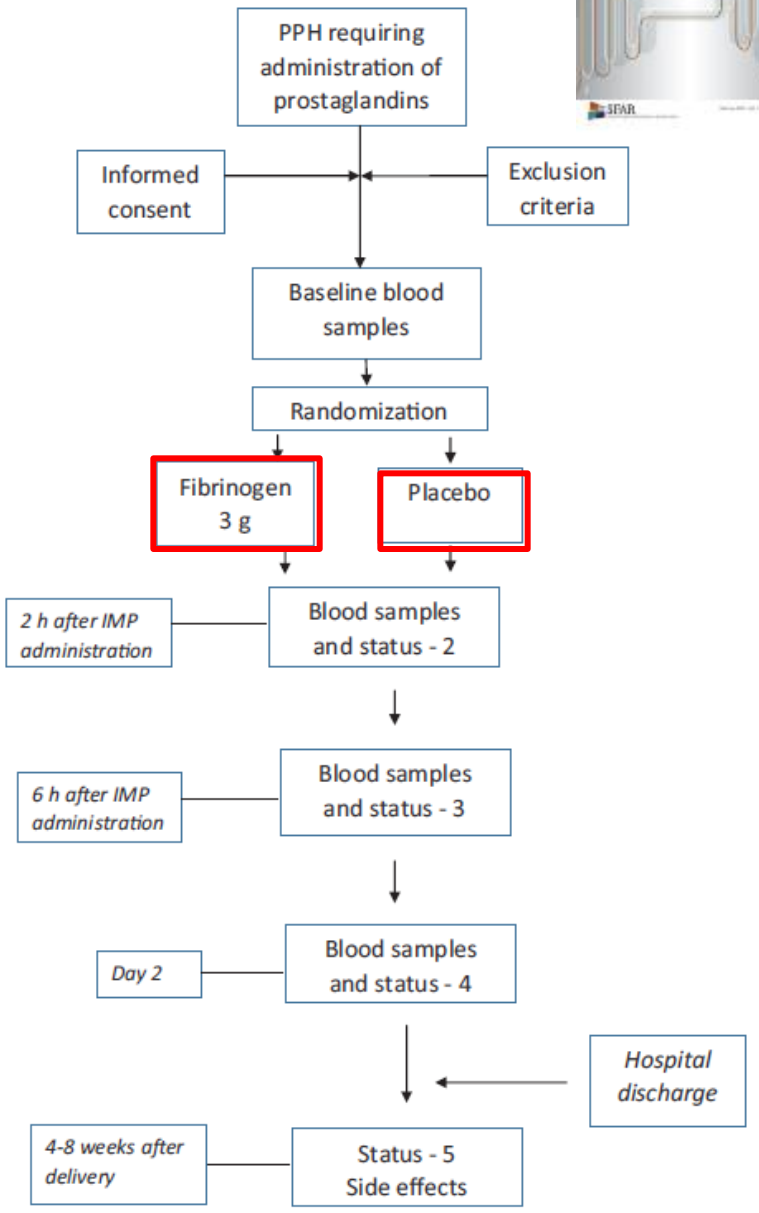
434 patientes

Accouchement voie basse

HPP + prostaglandines (sulprostone)

Primary outcome
Baisse de Hb ≥ 4 g/dl et/ou transfusion ≥ 2 CGR

Autres critères
Évolution HPP, morbi-mortalité maternelle



Introduction of an algorithm for ROTEM-guided fibrinogen concentrate administration in major obstetric haemorrhage

S. Mallaiah,[1] P. Barclay,[1] I. Harrod,[2] C. Chevannes[1] and A. Bhalla[2]

Anaesthesia 2015, 70, 166–175

Hémorragie sévère
1500 ml + coagulopathie
(FIBTEM 5 min < 12 mm)

avril 2011-mars 2012

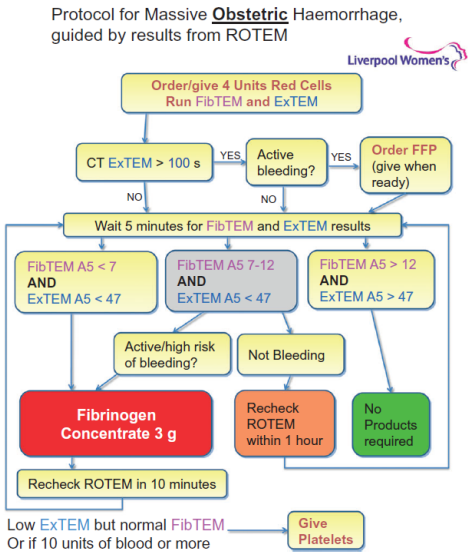
Pack transfusionnel
4 CGR, 4 PFC, 1 CPA Plq

Éventuellement renouvelé selon bilans sanguins (cryoprécipité)

juillet 2012-juin 2013

Transfusion 4 CGR, 1 CPA Plq
+ fibrinogène selon ROTEM

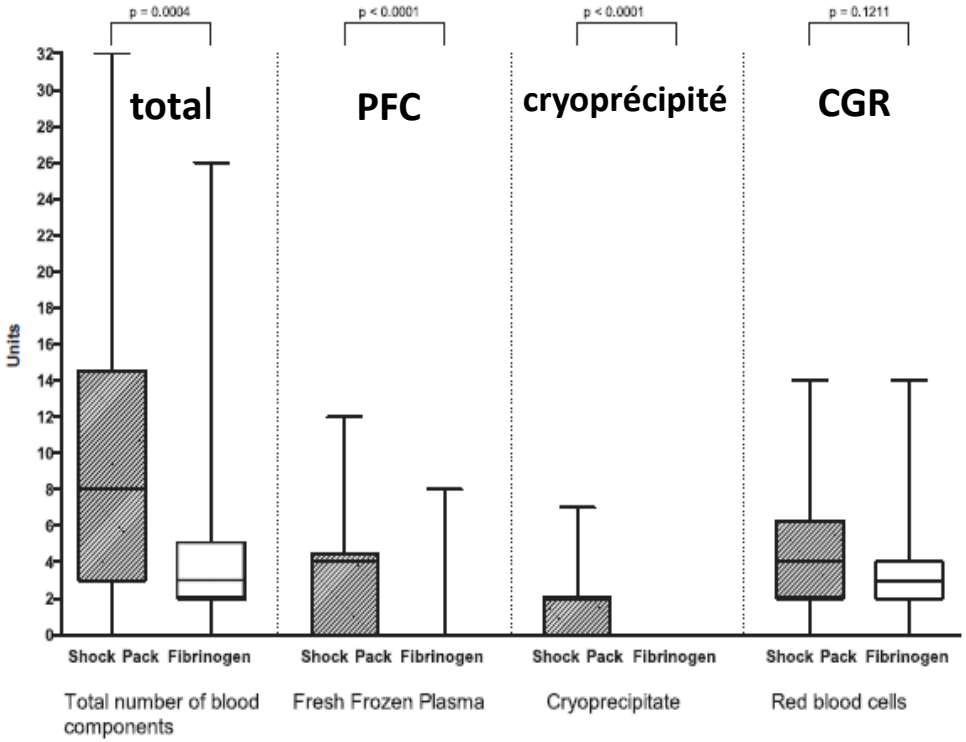
3 g fibrinogène si FIBTEM A5 < 7 mm



Introduction of an algorithm for ROTEM-guided fibrinogen concentrate administration in major obstetric haemorrhage

S. Mallaiah,[1] P. Barclay,[1] I. Harrod,[2] C. Chevannes[1] and A. Bhalla[2]

Anaesthesia 2015, 70, 166–175



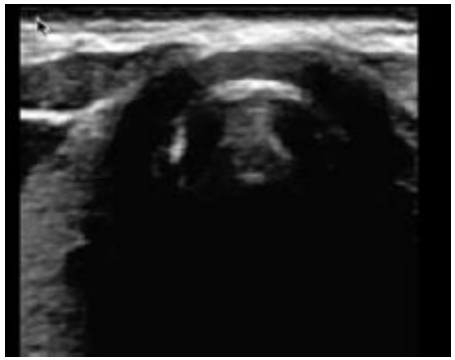
	Shock Pack (n = 42)	Fibrinogen (n = 51)	p value
ICU admission	4 (9%)	1 (2%)	NS
TACO	4 (9%)	0	0.0367
TRALI	0	0	NS
Postpartum hysterectomy	6 (14%)	3 (6%)	NS
Death	0	0	NS

TACO, transfusion-associated circulatory overload; TRALI, transfusion-related acute lung injury.

Analyse ROTEM → guide rapide pour l'indication de fibrinogène

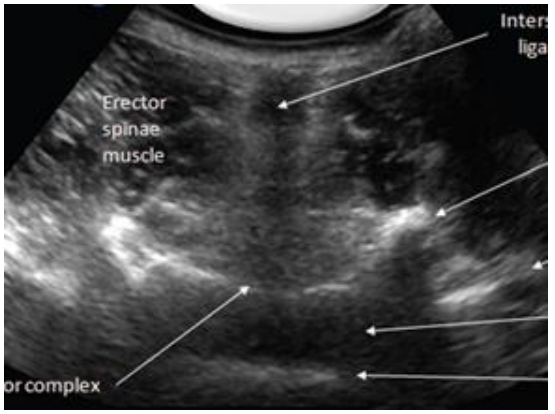
Gain de temps et réduction des apports transfusionnels

Échographie en anesthésie obstétricale

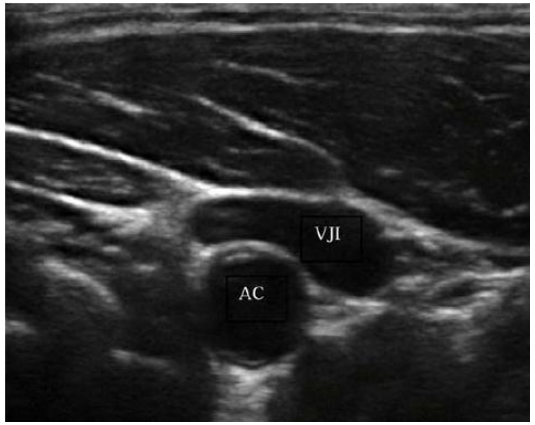


membrane crico-thyroïdienne

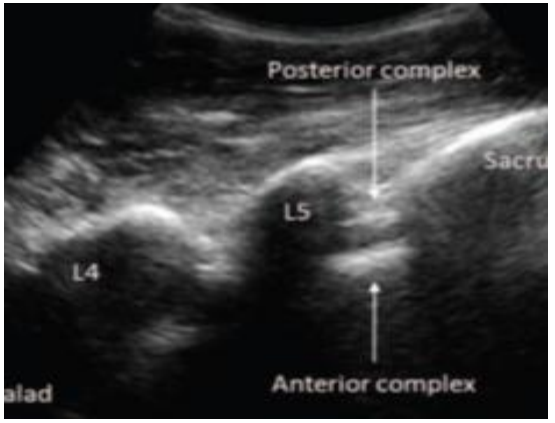
TAP bloc



Périmédullaire



Accès vasculaires



Clément Brun
Laurent Zieleskiewicz
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Jean-Pierre Bellefleur
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Maxime Tourret
Denis Ortega
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Jean-Yves Lefrant
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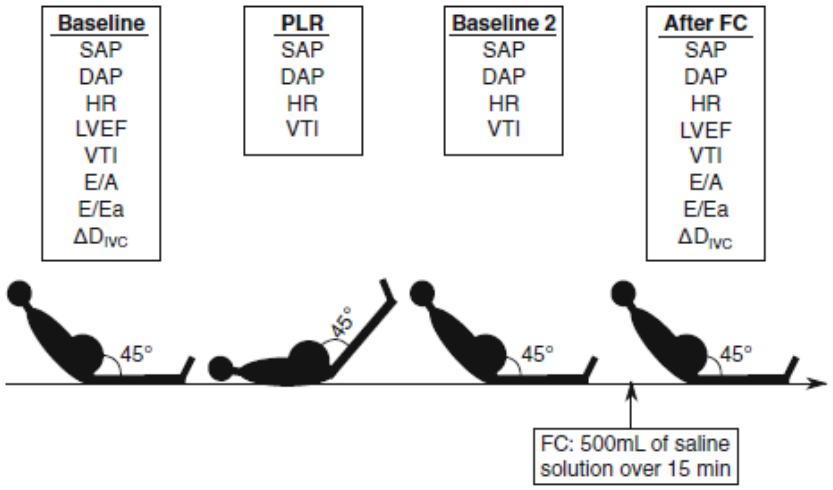
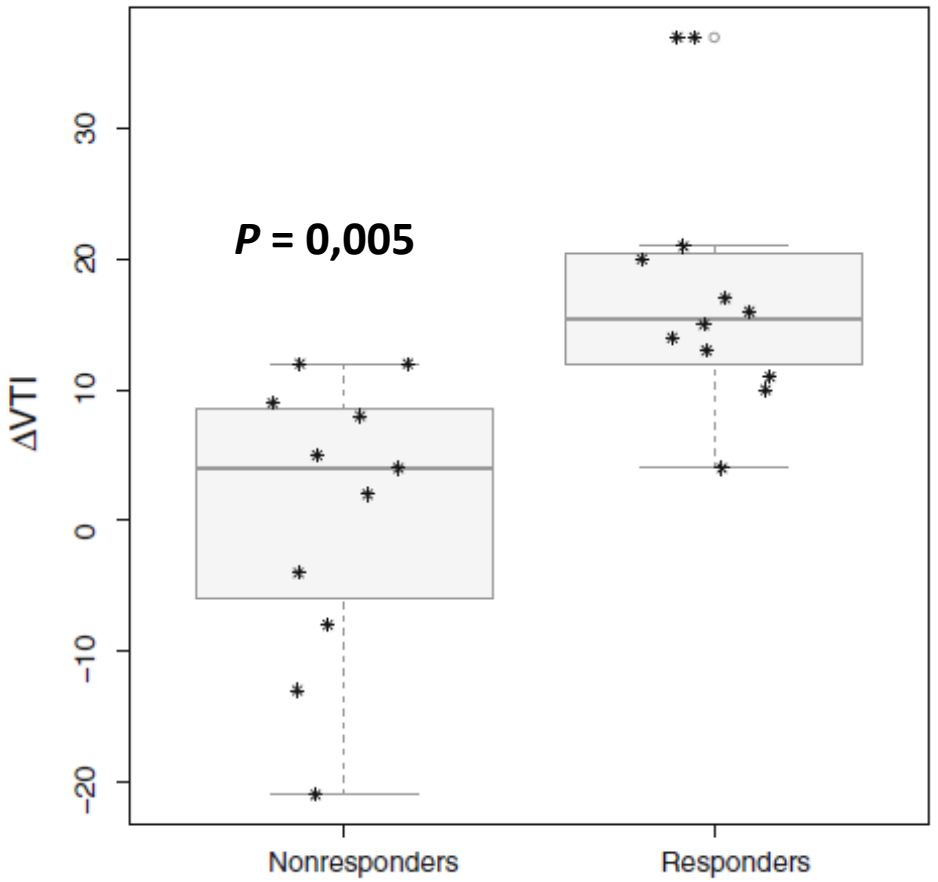
Florence Bretelle
Claude Martin
Marc Leone

Prediction of fluid responsiveness in severe preeclamptic patients with oliguria

Intensive Care Med (2013) 39:593–600



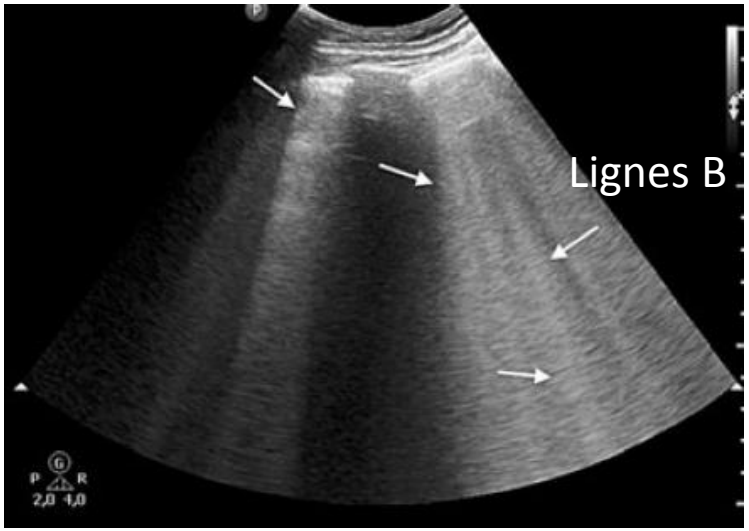


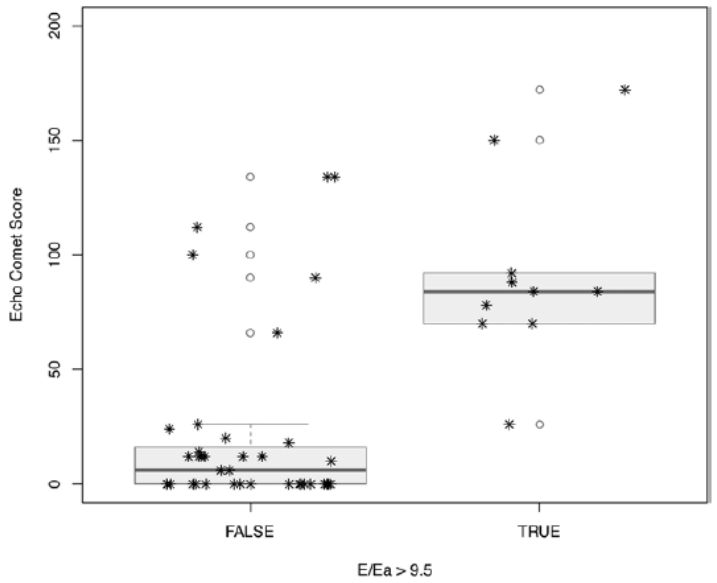
Δ ITV > 12 % lors du lever de jambe passif prédictif de la réponse au remplissage vasculaire lors de pré éclampsie sévère avec oligurie

Lung Ultrasound Predicts Interstitial Syndrome and Hemodynamic Profile in Parturients with Severe Preeclampsia

Laurent Zieleskiewicz, M.D., Claire Contargyris, M.D., Clément Brun, M.D., Maxime Touret, M.D., Armand Vellin, M.D., François Antonini, M.D., Laurent Muller, M.D., Ph.D., Florence Bretelle, M.D., Ph.D., Claude Martin, M.D., Marc Leone, M.D., Ph.D.

ANESTHESIOLOGY 2014





ECS > 25 prédictif de rapport E/E' > 9,5

Lung ultrasound-guided management of acute breathlessness during pregnancy

L. Zieleskiewicz,[1] D. Lagier,[2] C. Contargyris,[2] A. Bourgoin,[1] L. Gavage,[1] C. Martin[3] and M. Leone[4]

Apprentissage simple et rapide
Aide à la prise en charge de nombreuses situations cliniques

Nicardipine-associated pulmonary edema in a parturient: use of chest ultrasound

L. Zieleskiewicz,[1] V. Boustiere,[1] A. Bourgoin, E. Hammad, M. Leone

Determination of a cut-off value of antral area measured in the supine position for the fast diagnosis of an empty stomach in the parturient

A prospective cohort study

2016

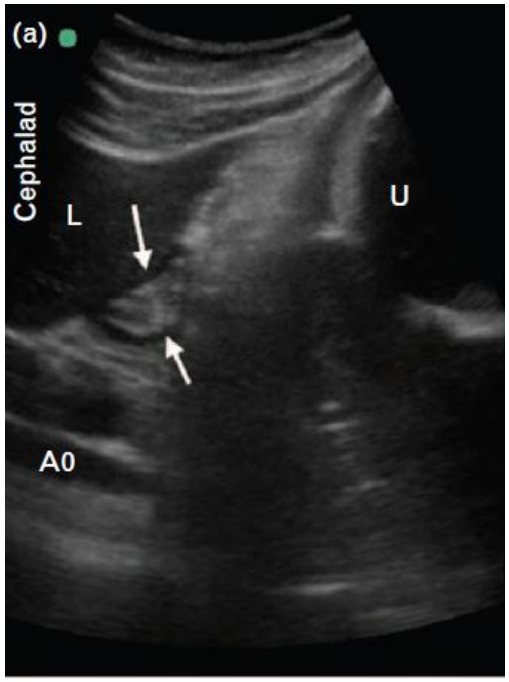
Lucille Jay, Laurent Zieleskiewicz, François-Pierrick Desgranges, Bérengère Cogniat, Marius Pop, Pierre Boucher, Amandine Bellon, Marc Léone, Dominique Chassard and Lionel Bouvet, for the AzuRea collaborative network

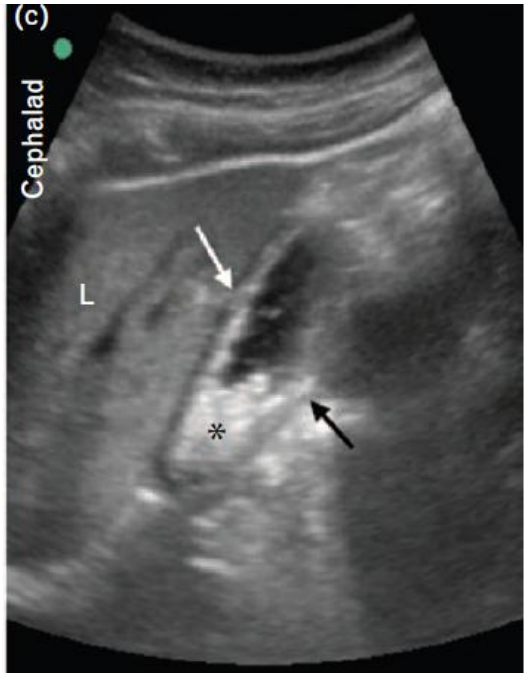
Eur J Anaesthesiol 2016; **33:**1–8

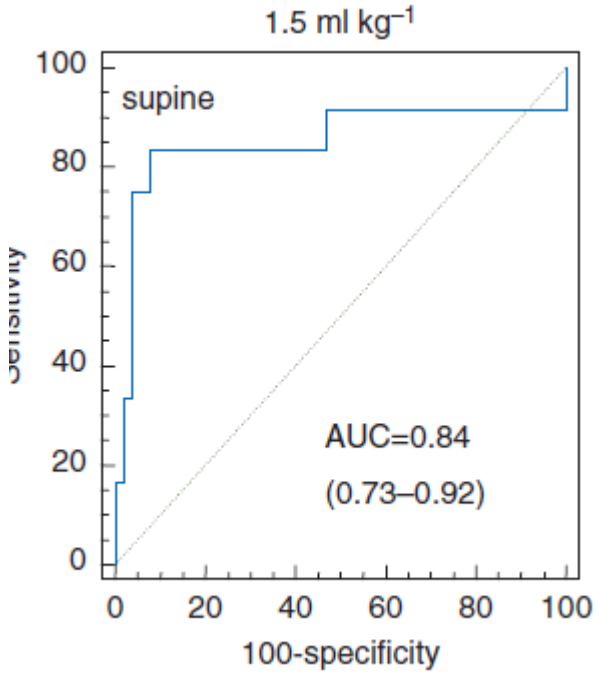
Ultrasonographic measurement of antral area for estimating gastric fluid volume in parturients

L. Zieleskiewicz[1], M. C. Boghossian[1], A. C. Delmas[1], L. Jay[2], A. Bourgoin[1], X. Carcopino[3], M. Poirier[1], B. Cogniat[2], A. Stewart[4], D. Chassard[2,5], M. Leone[1,6] and L. Bouvet[2,7,*] for the AzuRea and CAR'Echo Collaborative Networks

British Journal of Anaesthesia, 117 (2): 198–205 (2016)







Aide à l'estimation du risque d'inhalation pulmonaire
Stratégie anesthésique lors de certaines urgences (DA RU…)

Merci de votre attention