Vem kan vi sticka i ryggen?

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SFOAI
Säby säteri 10-11 maj 2017

Landstinget i Kalmar län

What is the risk of spinal haematoma in the obstetric patient?

- When is it safe to perform spinal and epidural blockades?

- Risk SH after spinal anaesthesia in non-obstetric patients 1:500.000*

- A spinal is not an epidural!

- Risk SH after epidural anesthesia in non-obstetric patients 1:10 000* - 1: 20 000**

- Risk SH after epidural anesthesia in obstetric patients 1: 200 000[#] - 1: 500 000[##]

- * *Moen et al, Anesthesiology 2004; 101:950-9   **NAP3, BJA 2009; 102: 179-90*
- # *Ruppen, Anesthesiology 2006 ; 105: 394-9   ##Volk et al Eur J Anaesthesiol 2012;29: 170-6*

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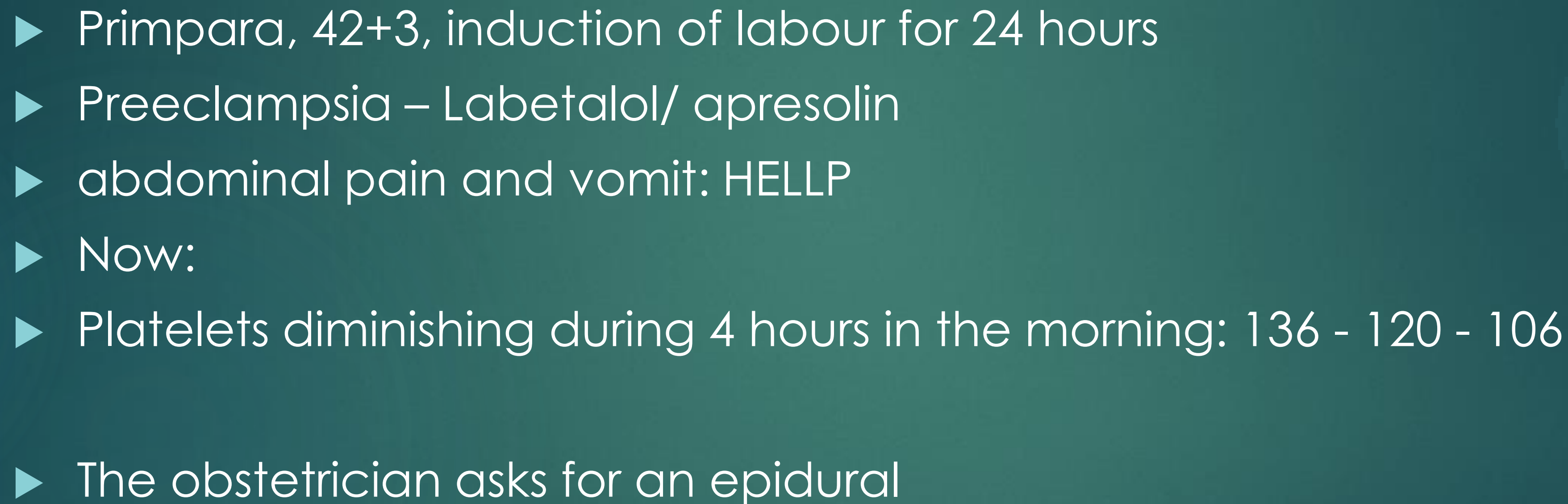

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Question to the audience

What would be your answer

- 1) Yes, I can give her an epidural, platelets are above 100
- 2) Yes, I can give her an epidural, but only after coagulation tests are performed-and if these are normal
- 3) No, I cannot give her an epidural, but if you perform a CS within the next few hours, I can give her a spinal
- 4) No, I will perform neither spinal nor epidural

Spinalhaematoma: Presentation of symptoms

Following epidural catheter

	Insertion	Removal	TOT
Case Reports 1904-1994*	≈ 50 %	≈ 50 %	61
UK 2007**	≈ 50 %	≈ 50 %	8

* *Vandermeulenet al , Anesth Analg 1994;79:1165-77*

** *Cook et al, BJA 2009;102:179-90*

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- Almost all obstetric SH have ocurred in women who developed coagulopathy
- AFTER they hade received epidural blockade:
- HELLP Large Obstetric Bleeding

Landstinget i Kalmar län

Major obstetric haemorrhage: monitoring with thromboelastography, laboratory analyses or both?

O. Karlsson,[a] A. Jeppsson,[b] M. Hellgren[c]

International Journal of Obstetric Anesthesia (2014) 23, 10–17

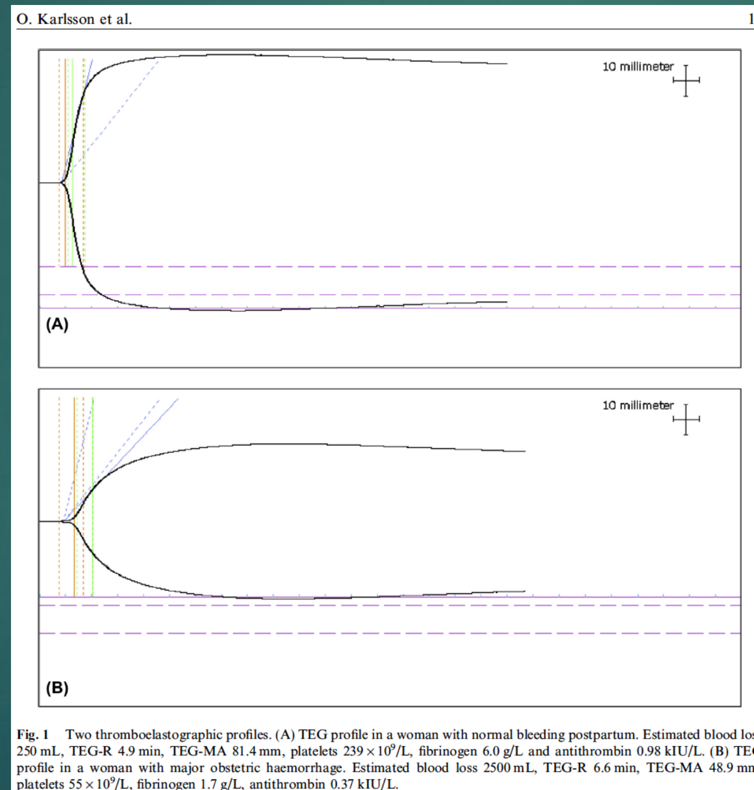

Fig. 1 Two thromboelastographic profiles. (A) TEG profile in a woman with normal bleeding postpartum. Estimated blood loss 250 mL, TEG-R 4.9 min, TEG-MA 81.4 mm, platelets 239×10^9/L, fibrinogen 6.0 g/L and antithrombin 0.98 kIU/L. (B) TEG profile in a woman with major obstetric haemorrhage. Estimated blood loss 2500 mL, TEG-R 6.6 min, TEG-MA 48.9 mm, platelets 55×10^9/L, fibrinogen 1.7 g/L, antithrombin 0.37 kIU/L.

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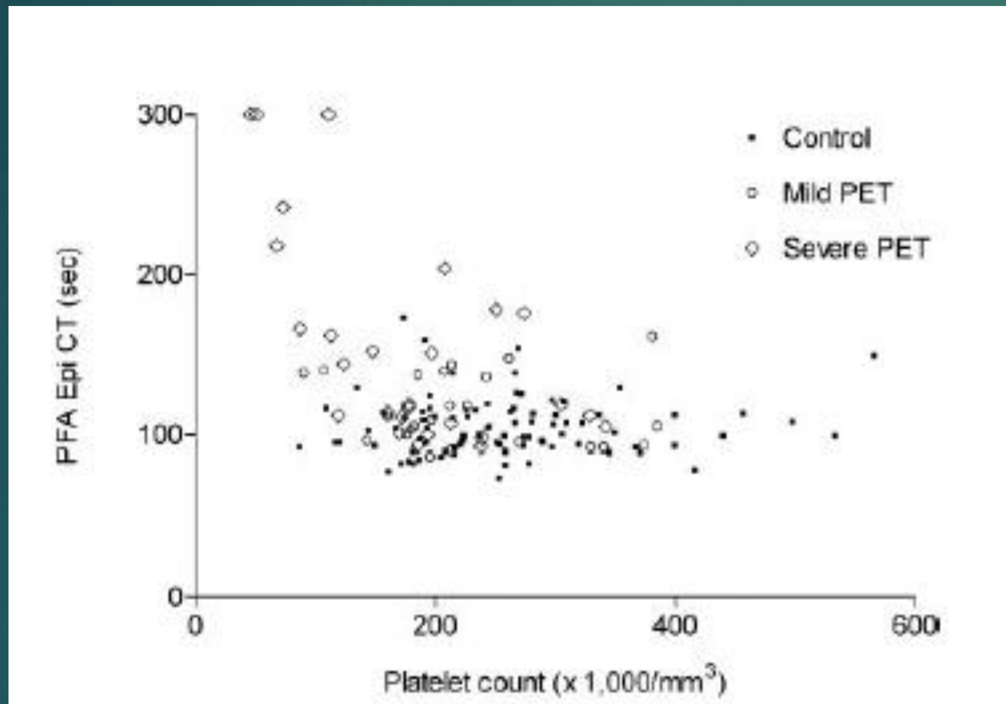
Preeclampsia and coagulation

Davies, et al Anesth Analg 2007; 104:416-20



Control: $R^2 = 0{,}004$, $p = 0{,}55$

Mild PET: $R^2 = 0{,}015$, $p = 0{,}57$

Severe PET: $R^2 = 0{,}37$, $p < 0{,}001$

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Spinalhaematoma – first symptoms

	US *	Sweden**	All
Motorblockade	30	18	48
Sensory loss	21	6	27
Pain	9	5	14

**   Lee at al, Anestheiology 2004; 100:143-52*
*** Moen et   al, Anesthesiology 2004; 101:950-9*

Questions to the audience

An obese pregnant woman with preeclampsia has received thromboprophylaxix with dalteparin 7500 IU once daily at 8 pm

Before planned delivery, doses were yesterday reduced to dalteparin 2500 U twice daily, at 8 am and 8 pm

At lunchtime (2 pm) you are asked to perform an epidural

What would be your answer?

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Questions to the audience

What would be your answer

1) Yes, 6 hours have passed since 2500 U dalteparin, I will perform the epidural

2) No, total dose in the last 24 hours are 10.000 U dalteparin, she will have to wait until 8 pm this evening

3) No, total dose in the last 24 hours are 10.000 U dalteparin, she will have to wait until tomorrow at 8 am

Landstinget i Kalmar län

Questions to the audience

An obese pregnant woman with preeclampsia has received thromboprophylaxix with dalteparin 7500 IU once daily at 8 pm

Before planned delivery, doses were yesterday reduced to dalteparin 2500 U twice daily, at 8 am and 8 pm

At 4 pm the obstretrician decides to perform a caesarean section

What would be your decision?

Questions to the audience

What would be your answer

1) I will give her a spinal

2) I will give her GA

Landstinget
i Kalmar län

- When is it safe to perform spinal and epidural blockades?

- Risk SH after spinal anaesthesia in non-obstetric patients 1:500.000

- SSAI guidelines:
- Spinalanaesthesia for CS can be performed without regard of time from thromboprophylaxis if:
- Thromboprophylaxis is maximum 2 500 U dalteparin
- Platelets > 50 000

- Remember: Normal platelets: probably normal haemostasis

Landstinget i Kalmar län

Regional anaesthesia and patients with abnormalities of coagulation

The Association of Anaesthetists of Great Britain & Ireland
The Obstetric Anaesthetists' Association
Regional Anaesthesia UK

Anaesthesia 2013, 68, 966–972

Table 3 Relative risks related to neuraxial blocks in obstetric patients with abnormalities of coagulation.

Risk factor	Normal risk	Increased risk	High risk	Very high risk
LMWH – prophylactic dose	> 12 h	6–12 h	< 6 h	< 6 h
LMWH – therapeutic dose	> 24 h	12–24 h	6–12 h	
UFH – infusion	Stopped > 4 h and APTTR ≤ 1.4			APTTR above normal range
UFH – prophylactic bolus dose	Last given > 4 h	Last given < 4 h		
NSAID + aspirin	Without LMWH	With LMWH dose 12–24 h	With LMWH dose < 12 h	
Warfarin	INR ≤ 1.4	INR 1.4–1.7	INR 1.7–2.0	INR > 2.0
General anaesthesia*	Starved, not in labour, antacids given		Full stomach or in labour	
Pre-eclampsia	Platelets > 100 × $10^9.l^{-1}$ within 6 h of block	Platelets 75–100 × $10^9.l^{-1}$ (stable) and normal coagulation tests	Platelets 75–100 × $10^9.l^{-1}$ (decreasing) and normal coagulation tests	Platelets < 75 × $10^9.l^{-1}$ or abnormal coagulation tests with indices ≥ 1.5 or HELLP syndrome
Idiopathic thrombocytopenia	Platelets > 75 × $10^9.l^{-1}$ within 24 h of block	Platelets 50–75 × $10^9.l^{-1}$	Platelets 20–50 × $10^9.l^{-1}$	Platelets < 20 × $10^9.l^{-1}$
Intra-uterine fetal death	FBC and coagulation tests normal within 6 h of block	No clinical problems but no investigation results available		With abruption or overt sepsis
Cholestasis	INR ≤ 1.4 within 24 h	No other clinical problems but no investigation results available		

LMWH, low molecular weight heparin; UFH, unfractionated heparin; APTTR, activated partial thromboplastin time; NSAID, non-steroidal anti-inflammatory drug; INR, international normalised ratio.

*Although general anaesthesia is not a risk factor per se for coagulation complications, it is included in this Table to highlight that the alternatives to regional anaesthesia are not free of risk; thus a risk–benefit comparison is required when choosing one over the other. See notes below.

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Conclusions

- Rare, or relatively rare conditions:
- No study or statistics can give simple and convincing guide for decisionmaking
- Risk /benefit analysis has to be performed on an individual basis, and often at short notice in emergency situations
- Spinal anaesthesia offers greate advantage over GA for surgical inteventions
- Epidural analgesia may not be available to all women, alternatives do exist.

Thank you for your attention!