МИНИСТЕРСТВО ЗА ЗДРАВСТВО
РЕПУБЛИКА МАКЕДОНИЈА

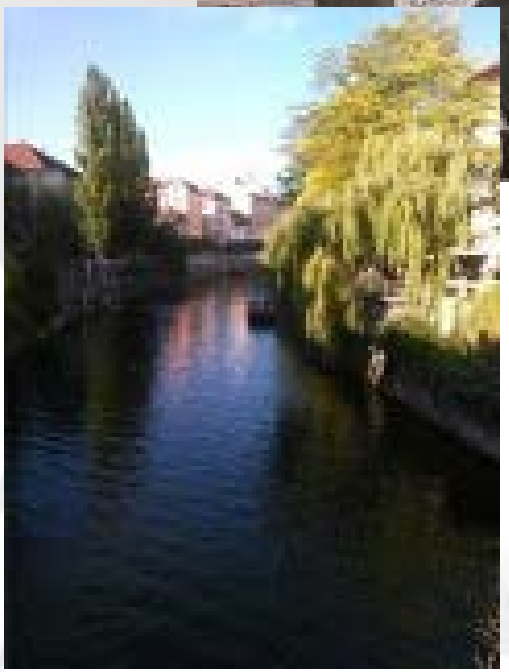
Стекнатите искуства од едукативниот стручен престој во Љубљана, Република Словенија (Едукација од областа на анестезија)

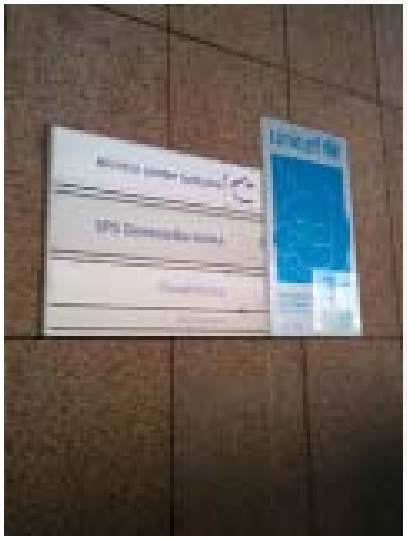
Универзитетска Клиника за Гинекологија и Акушерство - Скопје

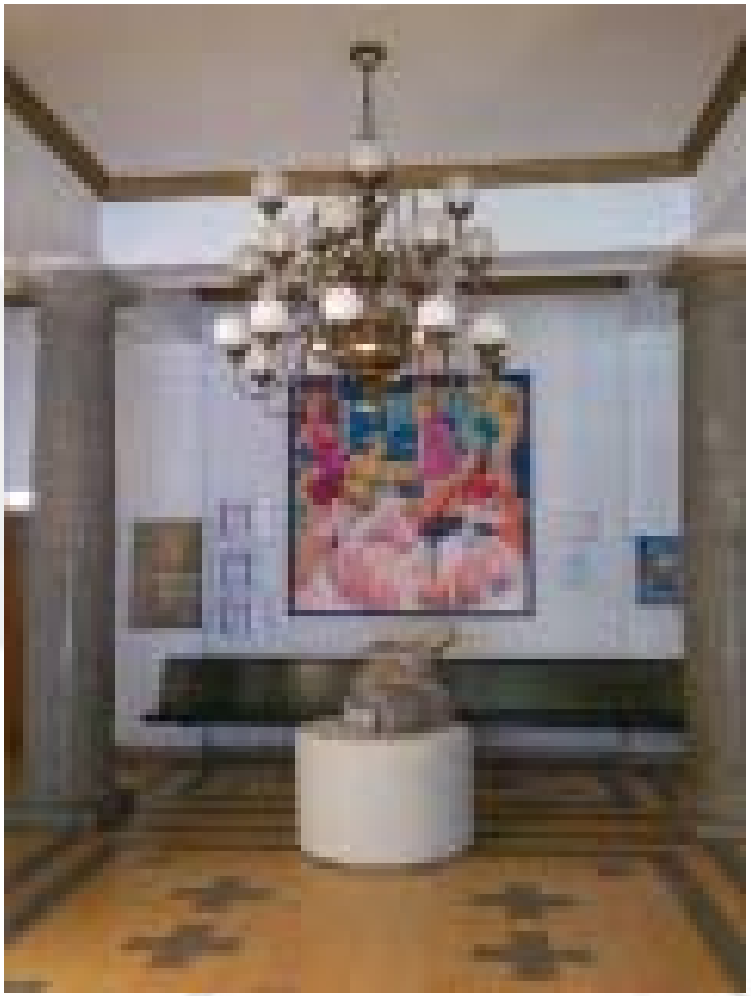
Клиника за Гинекологија и Акушерство, Универзитетски Клинички центар Љубљана
(28.Септември – 23.Октомври, 2015 година)

Прим.Д-р Атанас Сивевски

Датум на презентација: 10.11.2015 година







- **VRSTA ANESTEZJE:**

Področna anestezija

Priprava: iv. pot, infuzija 500 ml koloidov in/ali 500 ml kristaloidov

- ranitidin 50 mg iv. (vsaj 30 min pred posegom) in metoklopramid 10 mg iv.

Subarahnoidni blok (SAB)

- Po aseptični pripravi (2% klorheksidin ali povidon-jodid) in lokalni infiltraciji z 2% lidokainom 2 ml izvedemo (G 25-27) v višini **L3-L4** ali L2-L3 ali L4-L5 z lokalnim anestetikom z/brez opioidnega analgetika. Porodnic levem boku. Običajno uporabljamo 0.5 % hiperbarični bupivakain 1.8-2.2 ml, dodamo lahko do 20 µg fent izvedemo tudi z uporabo 0.5% bupivakaina ali levobupivakaina. Porodnico namestimo v levi bočni položaj (r
- Višino bloka testiramo bodisi z dotikom, toploto, hladom ali z iglo. Višina bloka naj bo Th 4. Porodnici d nosnega katetra ali obrazne maske, če je SaO_2 < 95% ali če je prisotna bradikardija ploda.
- Pri padcu krvnega tlaka uporabljamo enkratne odmerke fenilefrina 20 µg iv. oz. v neprekinjeni infuziji in/ali ki jih ponavljamo do normalizacije krvnega tlaka.

Фенилефрин - ефедрин

Guideline	✓
Care Pathway	
Training Pack	
Interventional Procedure	
Please tick ✓ all that apply	(Please cut and paste ✓ symbol as needed)

Management of Post Spinal Hypotension in Patients Undergoing Caesarean Section

Objectives
The management of post spinal hypotension in patients undergoing Caesarean section.

Patients covered
All patients undergoing spinal or combined spinal/epidural anaesthesia for Caesarean section.

Target users
Anaesthetists.

Clinical document recommendations (including different options for the management of condition) (please use flow charts where possible as they are easier to read)

1. There is a high incidence of post spinal hypotension (50-80%) in patients having Caesarean sections. Maternal side effects of hypotension include nausea, vomiting and cardiovascular collapse. Neonatal side effects of hypotension may include acidosis and depression (1,2).

2. Post spinal hypotension is usually treated by rapid infusion of fluid (3,4) and use of vasopressors. **N.B. Guidelines differ for patients with pre-eclampsia/eclampsia.** Other management strategies include uterine displacement, use of leg compressors and modifying the anaesthetic technique e.g. altering the dose/volume of local anaesthetic.

3. Recent evidence has shown that pre-loading or co-loading with colloid e.g. 500ml Hetastarch, results in lower incidence and severity of maternal hypotension than traditional preloading with crystalloid solutions, a lower heart rate, decreased ephedrine requirements and less nausea and vomiting (5) (6). Larger amounts of crystalloid result in no difference in hypotension, cardiac index, SVR, MAP or ephedrine use and results in a lower colloid oncotic pressure. (7).

4. Colloid loading at induction of spinal anaesthesia for Caesarean section is as effective in reducing hypotension as preloading (8).

5. A recent systematic review of ephedrine vs phenylephrine for spinal hypotension during Caesarean delivery has shown advantages of phenylephrine over ephedrine including, easier to titrate, more effective, less maternal tachycardia and hypertension and more

favourable fetal pH and base excess. Phenylephrine may cause more maternal bradycardia but **phenylephrine is now considered the vasopressor of choice in the Obstetric setting. (6).**

6. Phenylephrine may be used at 100microgram boluses titrated against blood pressure or as an infusion of 100 micrograms/minute commenced after the spinal anaesthetic has been sited. Phenylephrine infusion has been found to be preferable to boluses because there is a lower incidence and magnitude of hypotension, a trend towards less nausea (4% vs. 21%) and a slower heart rate. Although there is a larger total dose with infusion compared to boluses of phenylephrine, umbilical cord gases and Apgars are similar. (9).

7. An infusion of phenylephrine 100microgram/ml should be prepared prior to all elective Caesarean sections by diluting 5mg in 50mls of Normal Saline. It should be connected via a Y connector to the patient's intravenous line commencing at 20-30 ml/hour (up to 60ml/hour, i.e., 100 microgram/min), to maintain blood pressure at >90% pre block systolic.

The infusion rate should be reduced then stopped following delivery of the baby, Bradycardias can be treated with glycopyrrolate.
Phenylephrine boluses of 100micrograms may be used. (10).

8. **In summary in the healthy parturient to prevent post spinal hypotension;**

-Preloading or co- loading with colloid in the obstetric patient having spinal anaesthesia is better than crystalloid preloading.
-Left uterine displacement and compression stockings should be used.
-Phenylephrine is the vasopressor of choice, boluses may be used, an infusion is preferable to boluses in the elective patient. (6).

Auditable Standards
Incidence of post spinal hypotension in elective Caesarian section patients.

System for Audit / Monitoring, Review of Results and Monitoring of Action Plans
Audits in place.

Supporting evidence / references (recommendations should be supported with a list of references on which they are based unless they are based on national guidelines etc in which case this should be specified).

1. Crawford. Am. J Obs. Gynae. 1966
2.Moys and Smith; WCA 1964.
3.Crandall; Jama 1965.
4.Woolman and Marx Anaesthesiology 1963.
5. Oyna AM et al Cochrane database Syst. Review 2008.
6. Carvalho B Preventing hypotension during spinal anaesthesia. . OAA Three day course, London Nov. 2008.
7. Park et al. Anaes. Analg. 1996.
8. Nishikawa K. et al. J.Clin. Monit. Comput. 2007;21,135-8
9. Ngan Kee et al Anaesth. Analg. 2004 ;98, 615-21.
10. Leicester School of Anaesthesia Handbook of Obstetric Anaesthesia for trainees, 2008.

Фенилефрин - ефедрин

Постродилна болка

DIDIĆ
MILADINKA
30.01.1979
53856096 339 6475

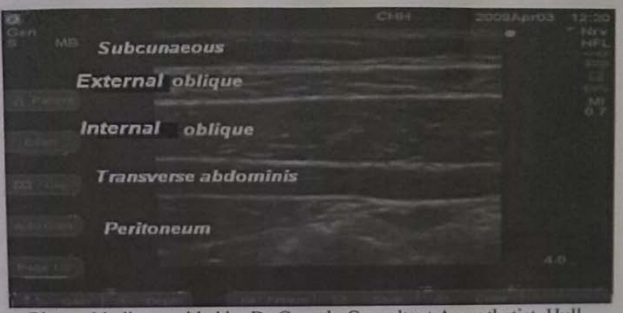
in ime, datum rojstva:

Ordiniral		Naročilo
n	zdravnik	
5	Blajić	¼ Ringerja v 5% glukozi 1000 ml i.v
		Tramal 100 mg+ Reglan 10 mg v 100 ml FR/8 ur iv
		Perphalgan 1 g iv/6 h
		Piritramid 3-5 mg iv pri VAS > 3
		Fragmin, 5000IE sc/24h ob 22h
		Ranital 150 mg/12h po
		Methergin 0,1 mg iv v 100 ml 0,9%NaCl/8h 3x
		Granisetrin 1mg v 10 ml 0,9% NaCl iv ob slabosti in bruh./12h
		Analgin 2.5g/12h i.v.
		Hb iz prsta
		TB/24h, diureza/12h, vitalne funkcije (RR, SF, sat O_2) 24h

Transversus Abdominis Plane Блок

NHS Trust

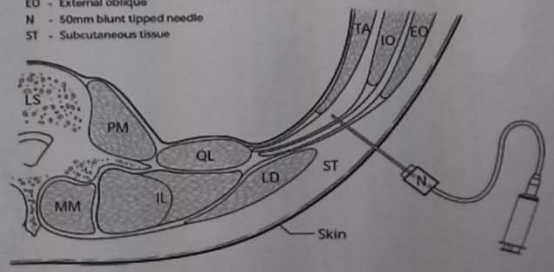
Fig 1: (2)



Picture kindly provided by Dr Ganesh, Consultant Anaesthetist, Hull.

Figure 2: (2)

LS - Lumbar spine
LD - Latissimus dorsi
PM - Psoas major
QL - Quadratus lumborum
MM - Mulitfidus muscle
IL - Longissimus, Iliocostalis
TA - Transversus abdominis
IO - Internal oblique
EO - External oblique
N - 50mm blunt tipped needle
ST - Subcutaneous tissue



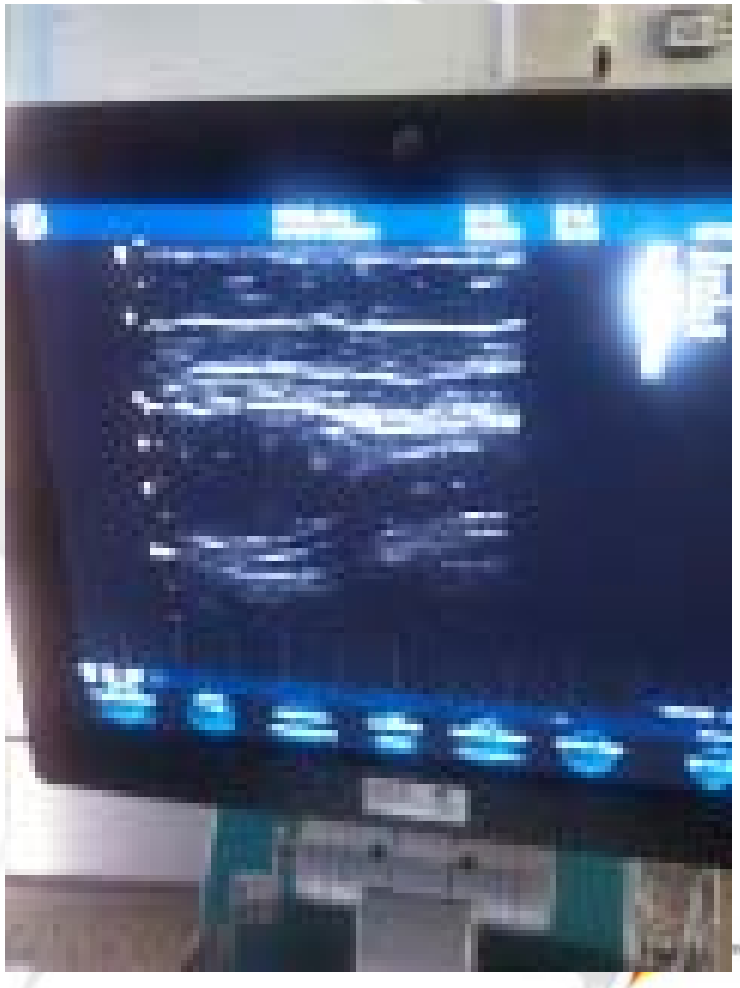
A detailed description with good USS images can be found at:

http://www.usra.ca/sb_tap

References

1. Farragher RA, Laffey JG. Postoperative pain management following cesarean section. In: Shorten G, Carr D, Harmon D, et al., eds. Postoperative pain management: an evidence-based guide to practice. 1st ed. Philadelphia, PA: Saunders Elsevier, 2006:225–38
2. John G. McDonnell et al. The Analgesic Efficacy of Transversus Abdominis Plane Block After Cesarean Delivery: A Randomized Controlled Trial Anesth Analg 2008; 106:186-191

Transversus Abdominis Plane Блок



Отежната интубација
-С MAC -видео ларингоскопија-

- Anesthesiology. 2012 Mar;116(3):629-36. doi: 10.1097/ALN.0b013e318246ea34.
- **Comparative effectiveness of the C-MAC video laryngoscope versus direct laryngoscopy in the setting of the predicted difficult airway.** Aziz MF[1], Dillman D, Fu R, Brambrink AM. **Author information**
- **Abstract**
- **BACKGROUND:**
- Video laryngoscopy may be useful in the setting of the difficult airway, but it remains unclear if intubation success is improved in routine difficult airway management. This study compared success rates for tracheal intubation with the C-MAC® video laryngoscope (Karl Storz, Tuttlingen, Germany) with conventional direct laryngoscopy in patients with predicted difficult airway.
- **METHODS:**
- We conducted a two arm, single-blinded randomized controlled trial that involved 300 patients. Inclusion required at least one of four predictors of difficult intubation. The primary outcome was successful tracheal intubation on first attempt.
- **RESULTS:**
- The use of video laryngoscopy resulted in more successful intubations on first attempt (138/149; 93%) as compared with direct laryngoscopy (124/147; 84%), P = 0.026. Cormack-Lehane laryngeal view was graded I or II in 139/149 of C-MAC attempts versus 119/147 in direct laryngoscopy attempts (P < 0.01). Laryngoscopy time averaged 46 s (95% CI, 40-51) for the C-MAC group and was shorter in the direct laryngoscopy group, 33 s (95% CI, 29-36), P < 0.001. The use of a gum-elastic bougie and/or external laryngeal manipulation were required less often in the C-MAC intubations (24%, 33/138) compared with direct laryngoscopy (37%, 46/124, P = 0.020). The incidence of complications was not significantly different between the C-MAC (20%, 27/138) versus direct laryngoscopy (13%, 16/124, P = 0.146).
- **CONCLUSION:**
- A diverse group of anesthesia providers achieved a higher intubation success rate on first attempt with the C-MAC in a broad range of patients with predictors of difficult intubation. C-MAC laryngoscopy seems to be a **useful technique for the initial approach to a potentially difficult airway**

univerzitetni klinični center ljubljana

МИНИСТЕРСТВО ЗА ЗДРАВСТВО

PROTOKOL EPIDURALNE ANALGEZIJE ZA LAJŠANJE OBPORODNE BOLEČINE

Pripravil/i	Sonja Marn Skok, dr. med., Katarina Marušič Gaser, dr. med., Darja Trošt, dr. med.		
Pregledal	Nina Pirc, dr. med, Simona Vrečič Slabe, dr. med.	Datum	podpis
Odobril	Prof.dr. Vesna Novak Jankovič dr. med	Datum	podpis

Izvajanje analgezije:

•5 do 10 min po testnem odmerku dodamo enkratni odmerek LA : 8-15ml 0.125% levobupivakaina z 50 µg fentanila, nato pa nadaljujemo:

• **a)** 20 do 30 min po aplikaciji enkratnega odmerka pričnemo z trajno infuzijo LA preko PCA črpalke**;** v trajni infuziji teče 4-8 ml/h 0.125% levobupivakaina z 1-1.5 µg/ml fentanila (100ml 0.125% levobupivakaina + 100-150 µg fentanila); vsakih 20-30 minut si lahko porodnica preko PCA črpalke doda bolus 3-5ml pripravljene analgetske mešanice LA in fentanila

STANDARDNI OPERATIVNI POSTOPEK	Oznaka	SP KRG KOAIT 0XX
Kirurška klinika Ginekološka klinika	Stran	1/3
Klinični oddelek za anesteziologijo in intenzivno terapijo operativnih strok Klinični oddelek za perinatologijo	Velja od	1.april 2014

1. **Namen in področje uporabe**

   Namen standardnih operativnih postopkov (SOP-ov) Kliničnega oddelka za anesteziologijo in intenzivno terapijo operativnih strok je, da se standardizirajo anesteziološki postopki in s tem izboljša kakovost in varnost.

2. **Postopek**

Analgezija z remifentanilom s PCA (patient controled analgesia) črpalko med porodom

Pripravili	Katarina Marušič Gaser, dr. med.; Darja Trošt, dr. med.; Sonja Mam Skok, dr.med.; Simona Vrečič Slabe, dr. med.		
Pregledal	Nina Pirc, dr. med, doc. dr. Tatjana Stopar Pintarič, dr. med.	datum	podpis
Odobril	Prof.dr. Vesna Novak Jankovič dr. med	datum	podpis

Remifentanil je ultrakratko delujoči, intravenski, opioidni analgetik, ki se je izkazal za varno in učinkovito zdravilo za lajšanje bolečine med porodom. Zaradi hitrega nastopa delovanja ter hitre presnove pri materi in otroku je primeren za analgezijo s PCA črpalko (pacient controled analgesia) in predstavlja ob epiduralni analgeziji dodatno možnost lajšanja bolečine za porodnice na KOP Ginekološke klinike.

Indikacije za remifentanil

1. Pri porodnicah, ki odklanjajo epiduralno analgezijo.
2. Pri porodnicah, pri katerih je epiduralna analgezija kontraindicirana.

Remifentanil trenutno ni registriran za lajšanje porodne bolečine, tako da se za takšno obliko analgezije odločijo porodničar, anesteziolog in babica.

Anestezijska sestra pripravi PCA črpalko z infuzijo remifentanila. Nastavi in prilagaja odmerke po posvetu z anesteziologom, spremlja potek in učinkovitost analgezije ter morebitno prisotnost stranskih učinkov.

<u>Anestezijska sestra pripravi dodatne mešanice remifentanila.</u>

Babica med porodom spremlja vitalne znake porodnice (SaO_2, srčni utrip, stopnjo sedacije, jakost bolečine in krvni tlak), obvešča anestezijsko sestro v primeru neučinkovite analgezije ter tudi anesteziologa v primeru stranskih učinkov/zapletov in zna v primeru zapletov ustaviti črpalko.

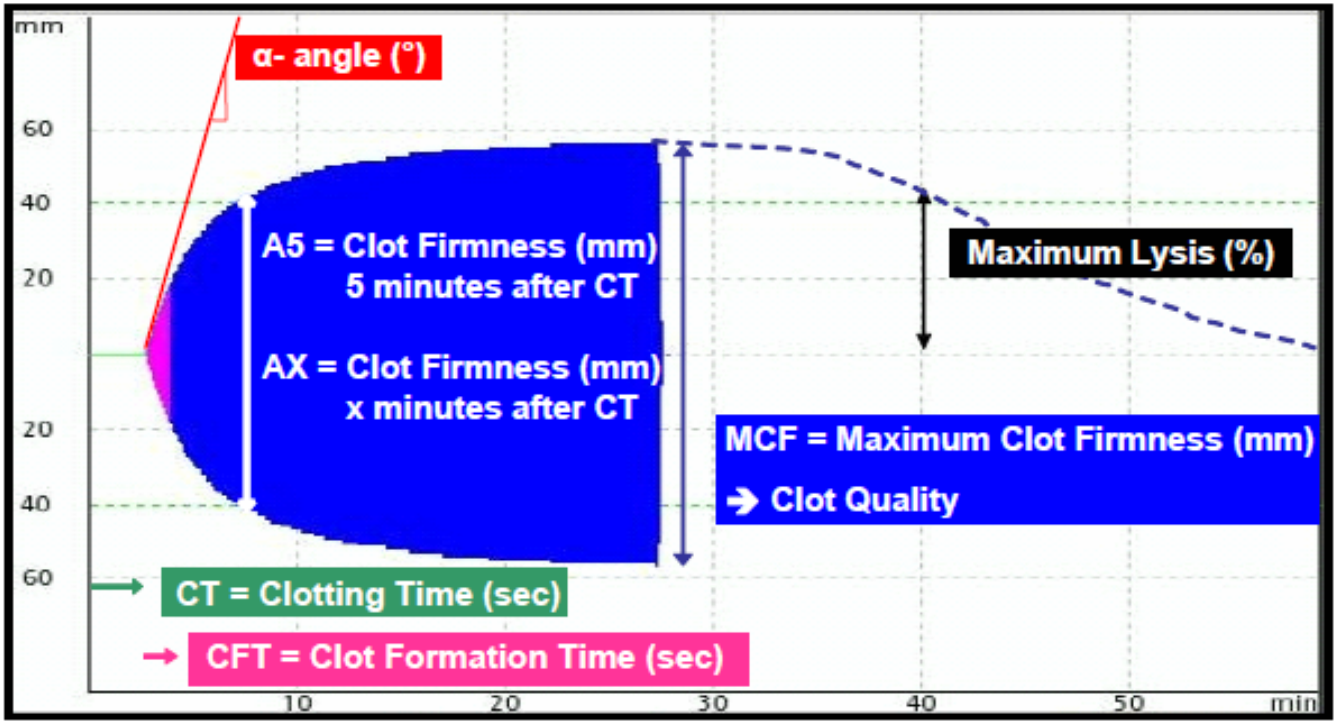
POGOJI ZA UPORABO REMIFENTANILA

1. Nadzor porodnice zagotavlja babica:
   - stalen nadzor nasičenosti krvi s kisikom (SaO_2), srčnega utripa in stopnje sedacije porodnice,
   - merjenje krvnega tlaka in jakost bolečine na 30 minut,
   - stalen nadzor ploda s kardiotokografom (CTG).
2. Pri porodnicah z gestacijo nižjo kot 34 tednov mora biti o tem obveščen neonatolog.
3. Možnost dovajanja kisika preko nosne cevke. Takojšnja dostopnost obrazne maske z ročnim dihalnim balonom za umetno predihavanje z nepovratno valvulo in rezervoarjem za kisik.
4. Dokumentiranje vitalnih funkcij na list za lajšanje porodne bolečine z remifentanilom.

Kontraindikacije:

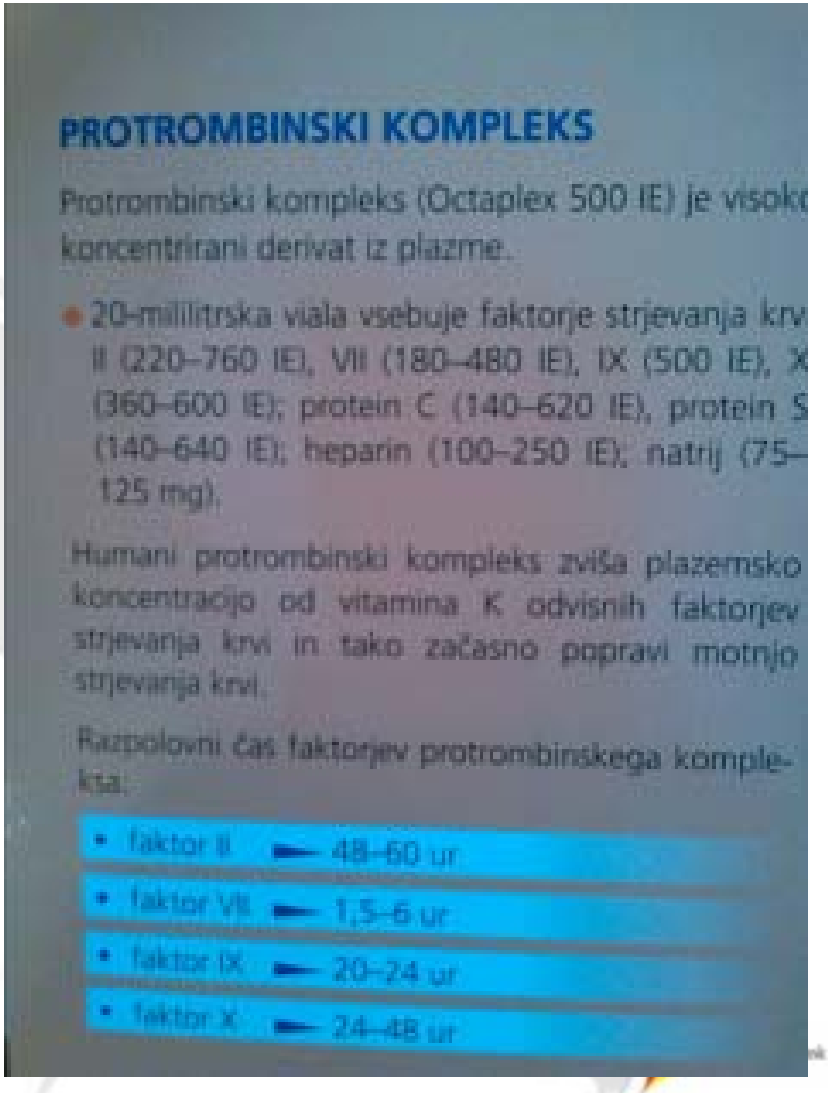
1. Alergija na remifentanil ali katerokoli sestavino zdravila.
2. Predhodna uporaba kateregakoli intravenskega opioidnega analgetika.

ROTEM® parameters



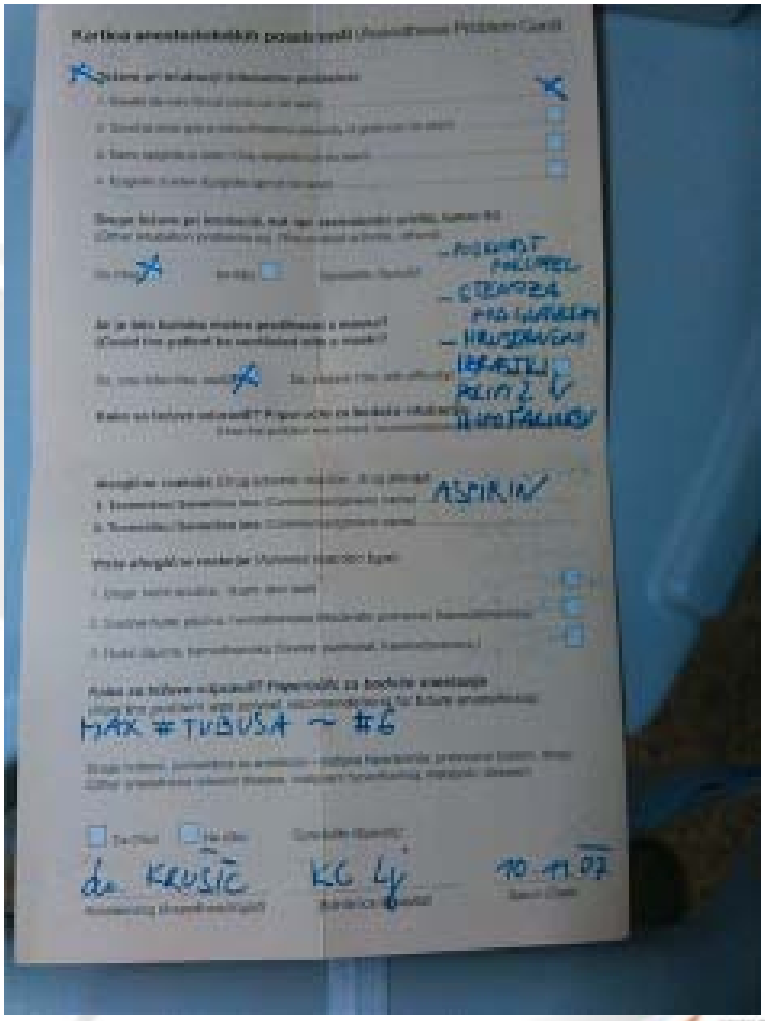
- **Rotational thromboelastometry** (**ROTEM**)- modification of traditional thromboelastography (TEG).
- TEM has become an established method in surgical procedures where blood losses can be expected. TEM investigates the interaction of coagulation factors, their inhibitors, anticoagulant drugs, blood cells, specifically platelets, during clotting and subsequent fibrinolysis.
- Application of TEM at the point of care (POC) or in emergency laboratories is getting more and more popular. TEM detects both hypo- and hyperfunctional stages of the clotting process and is probably the only reliable rapid test for the diagnosis of hyperfibrinolysis (in contrast to standard clotting tests, the fibrin stabilizing effect of factor XIII contributes to the result).
- The rapid availability of results helps to discriminate surgical bleeding from a true haemostasis disorder and improves the therapy with blood products, factor concentrates, anticoagulants and protamine, hemostyptic and antifibrinolytic drugs.[3][4]
- Several reports confirm that application of TEM is cost effective by reducing the consumption of blood products.[5][6][7]

Protrombnski kompleks v.s. SSP



BIS


Union Européenne des Médecins Spécialistes (UEMS)
Slovenian Society of Anaesthesiology
and Intensive Care Medicine (SSAICM)
The Medical Chamber of Slovenia (MCS)
Anaesthesia Problem Card
Clinical Department of Anaesthesiology
and Intensive Therapy
University Medical Centre Ljubljana (CKUL)
Zaloška 7, Ljubljana, Slovenia


ASPIRIN
MAX # TUBUSA ~ #6
dr. KRUSIČ
KG Ly
10.11.07

Благодарам на вниманието !