Съезд Congress

5-7 сентября 2018 / Санкт-Петербург
September 5-7, 2018 / St. Petersburg

Post caesarean section analgesia

Nuala Lucas
London North West University Healthcare

- Describe the evidence base for specific analgesic options in the post caesarean section patient

- Summarise a strategy for post caesarean section analgesia

What are the aims of post caesarean section analgesia?

Acute pain

Risk of persistent post surgical pain

Exposure to opioids

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Acute pain

Risk of pe pain

Minimal effect on baby
Limited excretion through breastmilk

Exposure to opioids

What are the aims of post caesarean section analgesia?

Acute pain

Risk of persistent post surgical pain

Exposure to opioids

Exposure to opioids

FOREIGN CONCEPT

The opioid epidemic is a global problem. And it's getting worse

By Mark Porubcansky | 05/07/2018

Email Facebook Twitter Print

According to the Centers for Disease Control, about 115 people die every day in this country of an opioid overdose.

The opioid crisis isn't only an American problem. It's a global problem that's getting steadily worse, and according to some experts, is in danger of becoming a global pandemic.

Exposure to opioids

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Deaths from opioid abuse > deaths from road traffic accidents

More than 115 people die every day in the United States after overdosing on opioids

CDC estimates that the total "economic burden" of prescription opioid misuse alone in the United States is $78.5 billion a year, including costs of healthcare, lost productivity, addiction treatment, and criminal justice involvement.

Opioids and the pregnant woman

- 1 in 300 become persistent prescription opioid users following caesarean delivery
- Predictors of persistent use
  - Pre-existing psychiatric comorbidity, substance use/abuse conditions identifiable at the time of initial opioid prescribing

Desai, Obstet Gynecol, 2014

Opioids and the pregnant woman

Could prescribing habits be contributing?

- Phone questionnaire to women who a CS about opioid prescription they received on discharge and oral opioid intake at home
- Median number of dispensed opioid tablets was 40 & median number consumed was 20
- An association between a larger number of tablets dispensed and the number consumed, independent of patient characteristics
- Amount of opioids dispensed did not correlate with patient satisfaction, pain control, or the need to refill the opioid prescription

Bateman, Am J O & G, 2016

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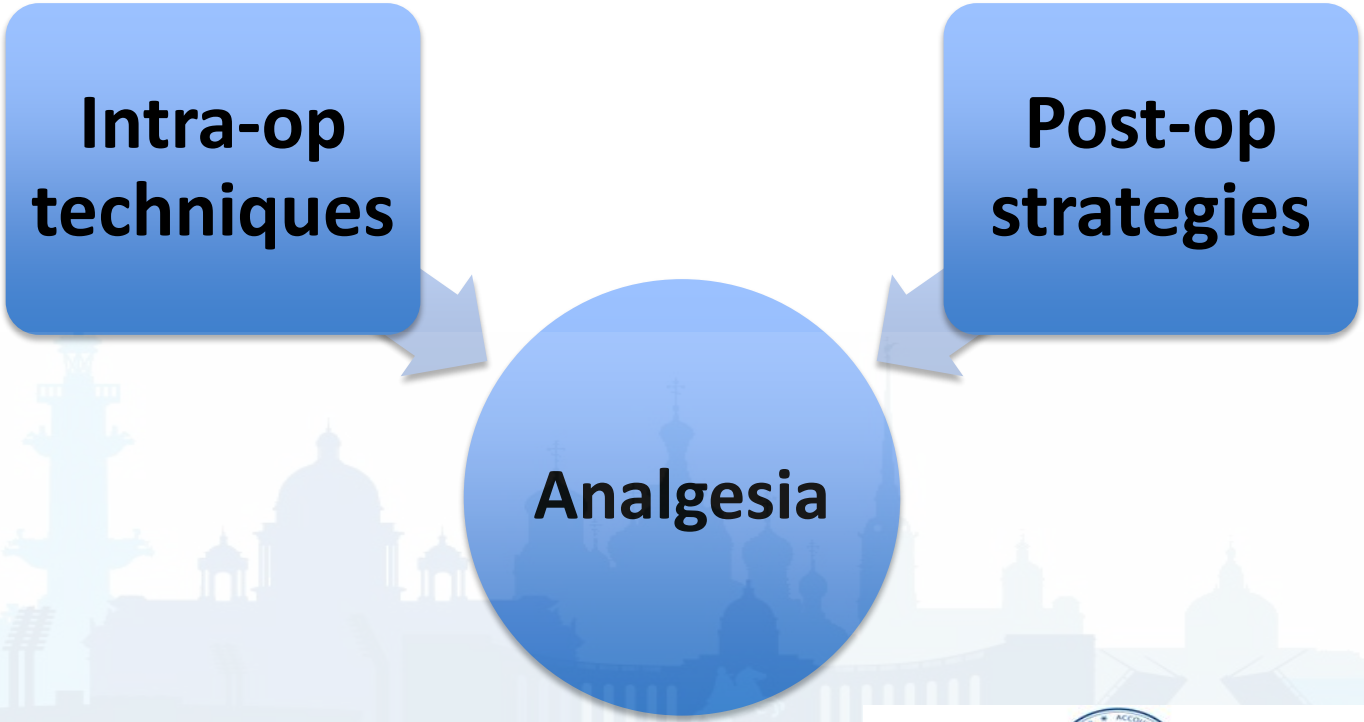
Targeting post CS analgesia



Intra-op techniques

- **Neuraxial opioids**
- Represent ‘gold standard’
  - A agent of superior quality which serves as a point of reference against which other things of its type may be compared
  - Recommended by NICE (UK), ASA & American Pain Society

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Questions

- What agent?
- What dose?
- What are the risks?

Neuraxial opioids

What agent?

- Physicochemical properties of opioids determine their onset time, duration of action, and potency
- High lipid solubility (fentanyl) and low p*K*a results in a highly potent opioid with a rapid onset of effect, but limited duration of action
- Decreasing lipophilicity (morphine) increases the duration of action

What dose of neuraxial morphine?

- Elective CS under spinal anesthesia comparing low-dose (50–100 µg) morphine with higher dose >100–250 µg)
- Evaluated a range of outcomes
  - Time to first analgesic request
  - Pain scores
  - Morphine consumption at 24 hours
  - Nausea or vomiting
  - Pruritus

Sultan, A&A, 2016

	Low dose	High dose	
Time to first analgesic request	Mean difference 4.49 hours [95% CI, 1.85–7.13] in favour of high dose		P = 0.0008

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Nausea or vomiting P = 0.002)	Mean difference 0.44 [95% CI, 0.27–0.73] worse with high dose		P = 0.002
Pruritus	Mean difference 0.34 [95% CI, 0.20–0.59] worse with high dose		P = 0.0001

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TAKE HOME MESSAGE – HIGHER DOSES ASSOCIATED WITH PROLONGED ANALGESIA BUT INCREASED SIDE EFFECTS

Sultan, A&A, 2016

What are the risks of neuraxial opioids?

- Major concern – respiratory depression - how frequently does it occur?
- Literature review of published studies of women who had received neuraxial morphine or diamorphine
- Cases of clinically significant respiratory depression sought
- Highest prevalence of respiratory depression 1.63 per 10,000
- Lowest prevalence of respiratory depression 1.08 per 10,000

Sharawi, Aneth Analg, 2018

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- Literature review of published studies of women who had receiv
- Cases ught
- High 10,000
- Lowest prevalence of respiratory depression 1.08 per 10,000

TAKE HOME MESSAGE –
CLINICALLY SIGNIFICANT RESPIRATORY DEPRESSION RARE WITH STANDARD DOSES

Sharawi, Aneth Analg, 2018

Targeting post CS analgesia

Intra-op techniques

Post-op strategies

Analgesia

Post-op strategies

What is the ideal analgesic?

Opioid sparing	
Synergistic action with other agents	
Minimal side effects	
Safe for breastfeeding?	
Cost	

Paracetomol

Opioid sparing	++ 10-20%
Synergistic action with other agents	+++
Minimal side effects	+++
Safe for breastfeeding?	
Cost	+++

Ong, Anesth Analg 2010
Hansen, Ann Pharmacol 2017
Alhasehmi, Can J Anes 2005

NSAIDS

Opioid sparing	+++30-50%
Synergistic action with other agents	+++
Minimal side effects	++
Safe for breastfeeding?	
Cost	+++

Elia, Anesth, 2005
Maund, BJA, 2011

Timing of analgesia

BJOG An International Journal of Obstetrics and Gynaecology

DOI: 10.1111/1471-0528.14546
www.bjog.org

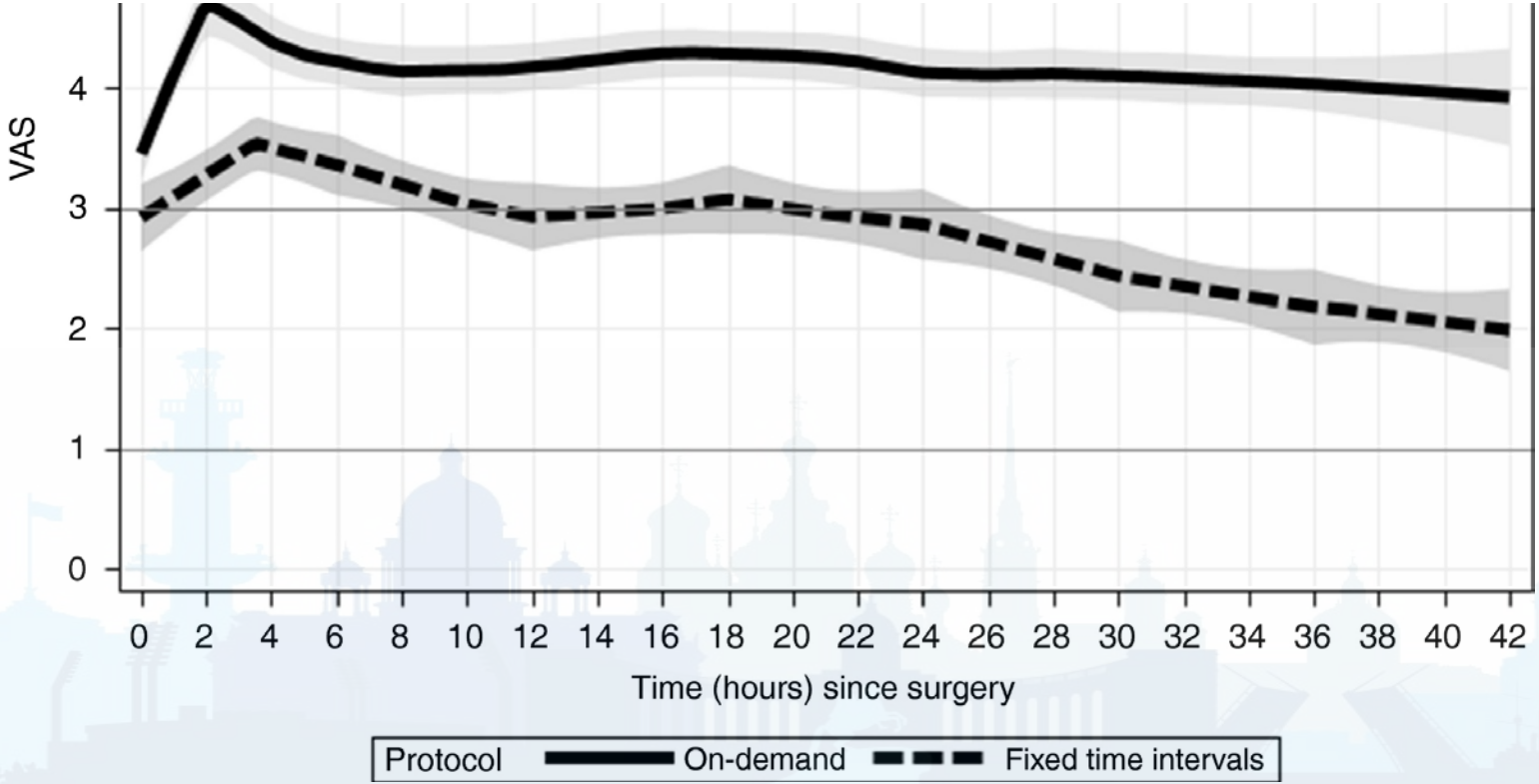
General obstetrics

Fixed time interval compared with on-demand oral analgesia protocols for post-caesarean pain: a randomised controlled trial

E Yefet,[a] H Taha,[a] R Salim,[a,b] J Hasanein,[c] Y Carmeli,[d] N Schwartz,[e] Z Nachum[a,b]

- Post caesarean section under spinal anaesthesia
- >200 women randomly assigned to receive paracetemol, diclofenac and tramadol at 6 hourly intervals or ‘on demand’

Fixed time interval compared with on-demand oral analgesia protocols for post-caesarean pain



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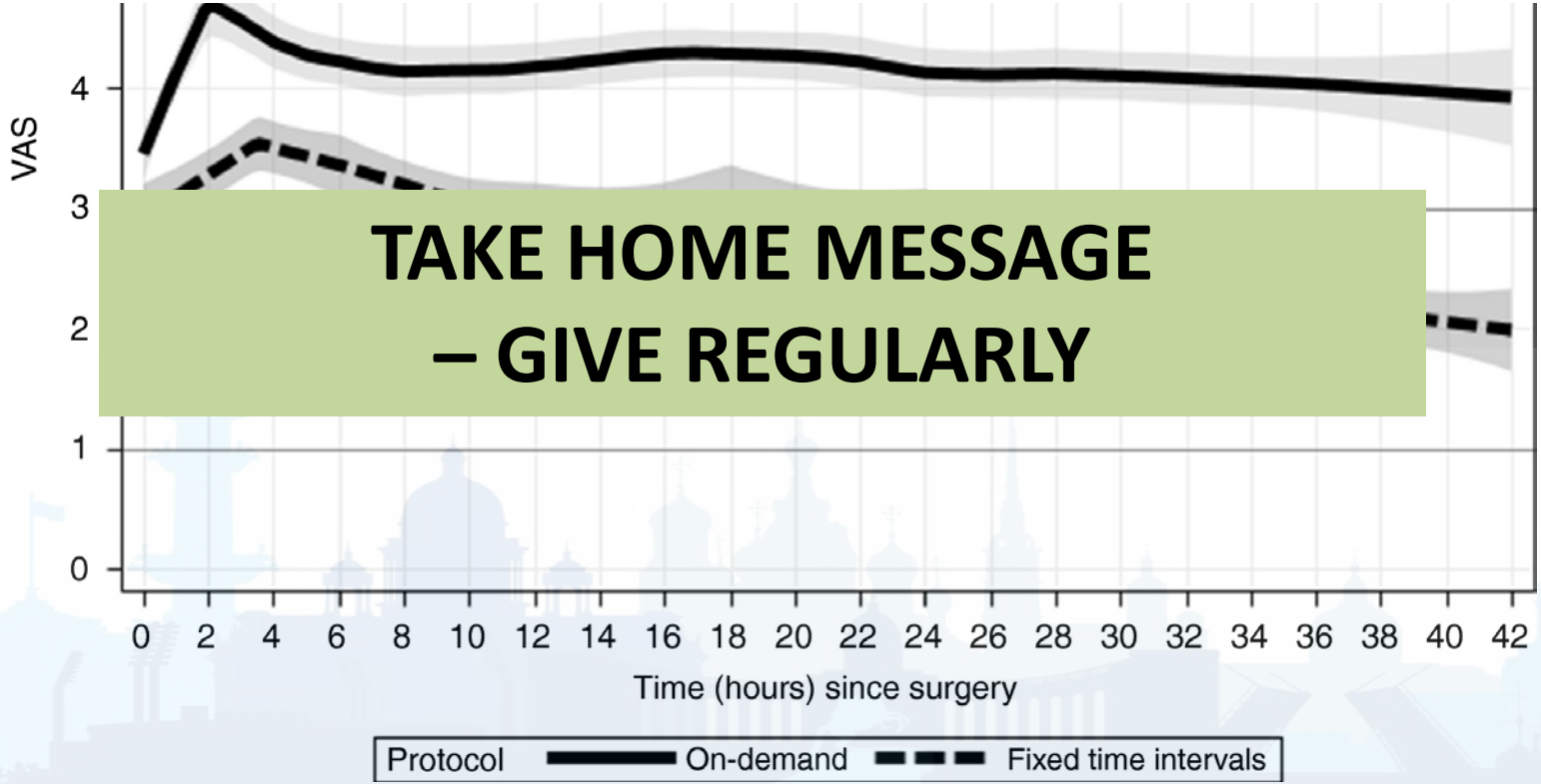
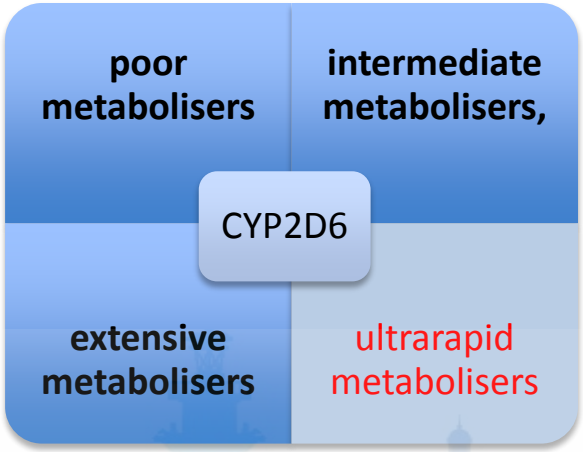


TAKE HOME MESSAGE
– GIVE REGULARLY

What's the problem with codeine?

- Rarely, normal doses of codeine given to lactating women may result in dangerously high levels of its active metabolite morphine in breastfeeding infants
- Occurs as a result of codeine metabolism
  - metabolised in the liver by CYP2D6 (isoenzyme of cytochrome P450) to morphine
- A fatality has been noted in an infant of a mother with ultrarapid metabolism

What's the problem with codeine?



MHRA/EMA, 2013

'Codeine is contraindicated in breast feeding women'

Incidence of this specific CYP2D6 genotype varies with racial and ethnic group:
Chinese, Japanese, or Hispanic, 0.5-1.0%
North African, Ethiopian, and Saudi Arabian, 16.0- 28.0%.

What about the rest?

- Dihydrocodeine
  - metabolised in liver by CYP2D6
  - analgesic effect of dihydrocodeine appears to be mainly due to parent compound
- Tramadol
  - metabolised by N- and O-demethylation via isoenzymes CYP3A4 & CYP2D6 & glucuronidation in the liver
  - metabolite O-desmethyltramadol is pharmacologically active

What about the rest?

- Dihydrocodeine
  - metabolised in liver by CYP2D6
  - analgesic effect of dihydrocodeine
- Tramadol
  - metabolised by N- and O-demethylation via isoenzymes CYP3A4 & CYP2D6 & glucuronidation

- **Not practical to genotype all breastfeeding mothers to predict side effects**
- **Rely on monitoring the infant to detect any potential problems**
- **Prescribe at the lowest effective dose for the shortest duration**

pharmacologically active

Using local anaesthetic outside the neuraxial trunk

- TAP blocks
- Wound infiltration
- Quadratus lumborum blocks

TAP blocks

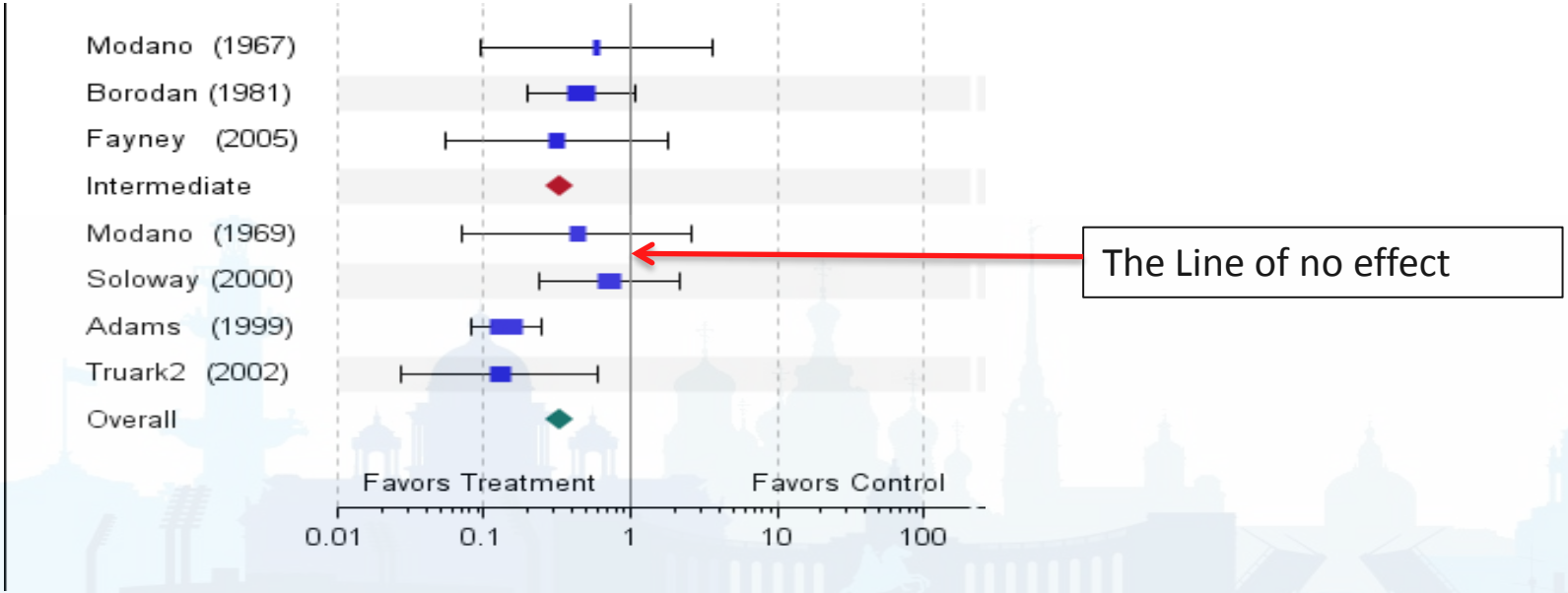
- Anaesthesia to the sensory nerve supply of anterior abdominal wall
- Achieved in the neurofascial plane between the internal oblique & transversus abdominis muscles through well-defined entrance at triangle of Petit
- Require bilateral blocks - potentially large volume of LA

Evaluating TAP blocks

- Many studies!!
- Ultrasound guided vs landmark technique
  - TAP block vs control
  - TAP block vs intrathecal opioid
- End points
  - Pain at rest
  - Pain on movement
  - Opioid consumption

Statistics

Forest plots



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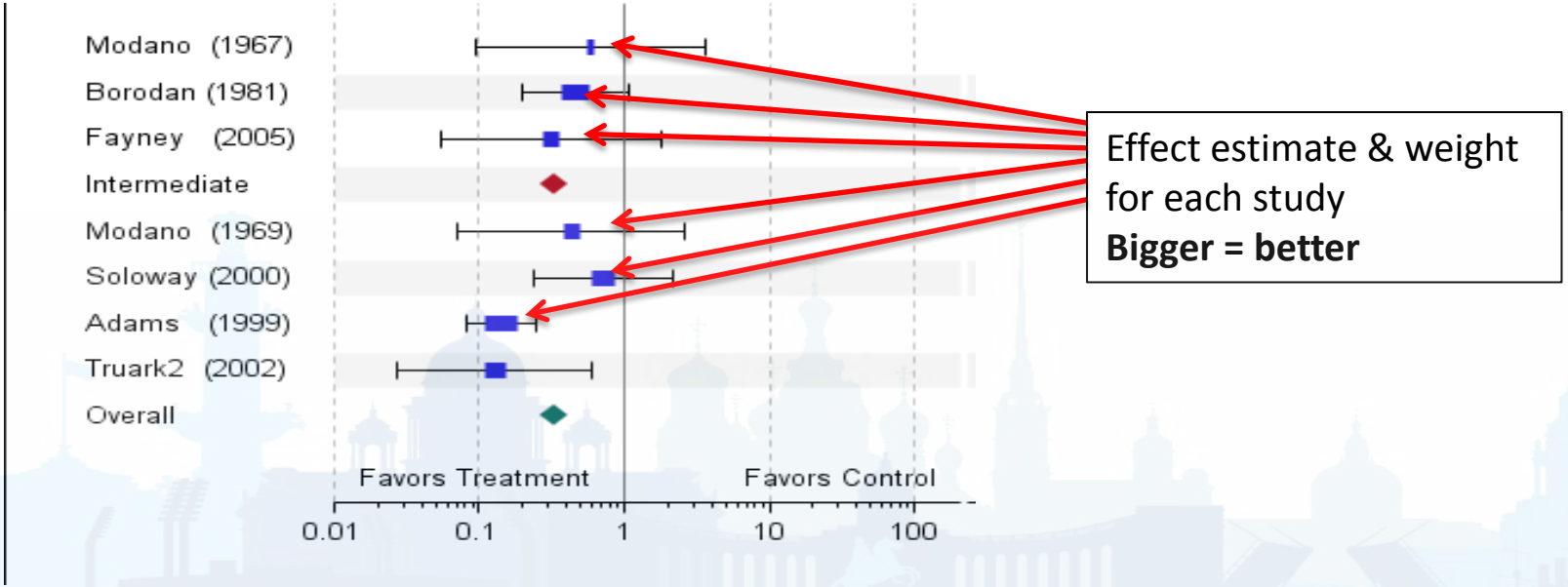
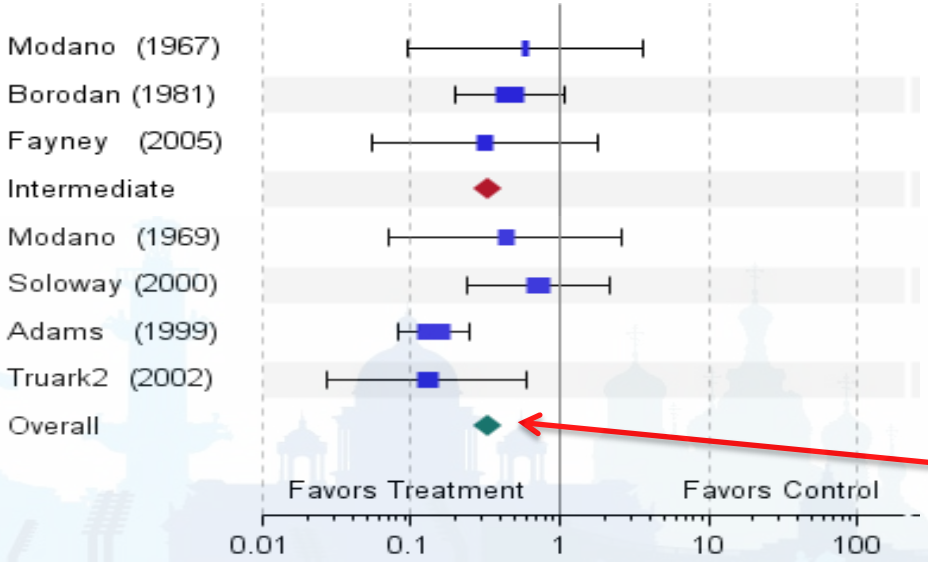


Effect estimate & weight for each study
Bigger = better

Statistics

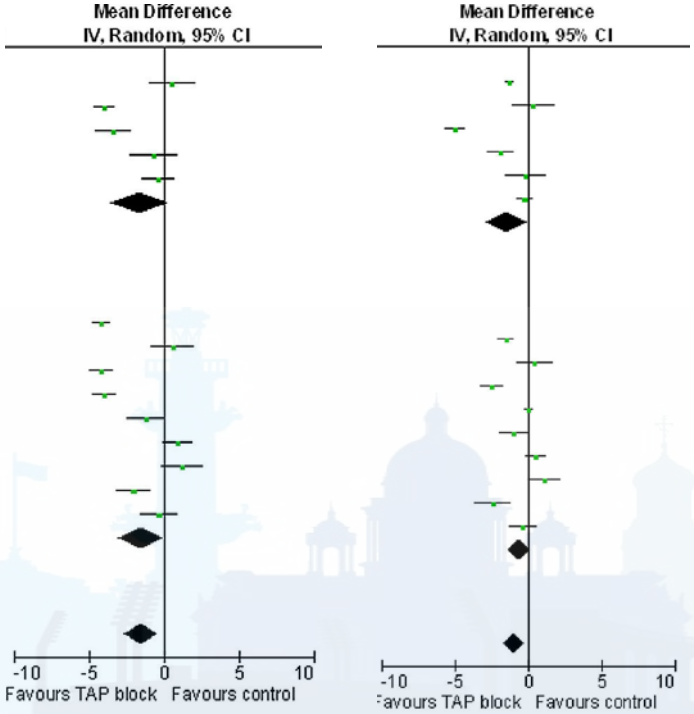
Forest plots



Overall effect estimate

TAP block vs control

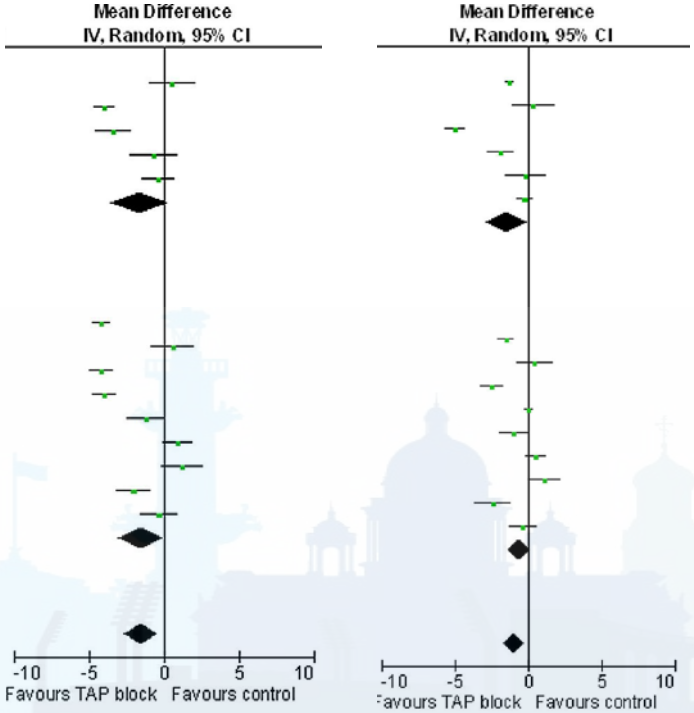
Pain at rest & with movement

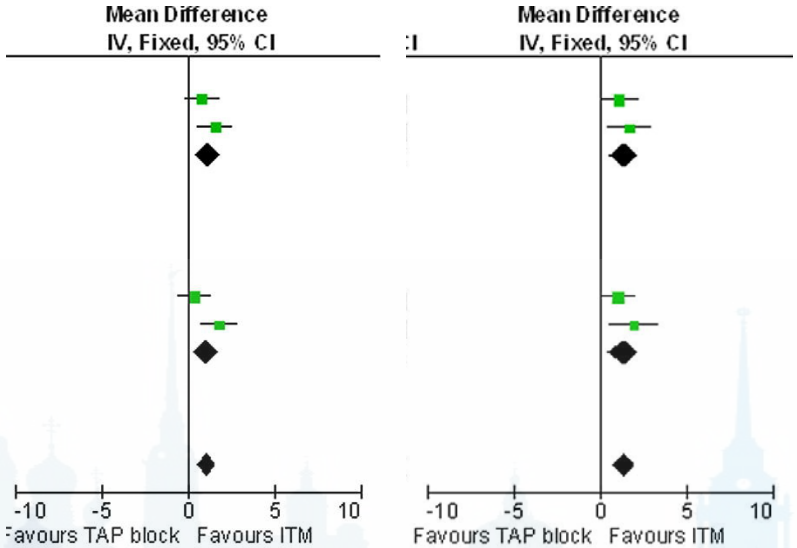


Champaneria, IJOA, 2016

TAP block vs neuraxial opioids

Pain at rest & with movement





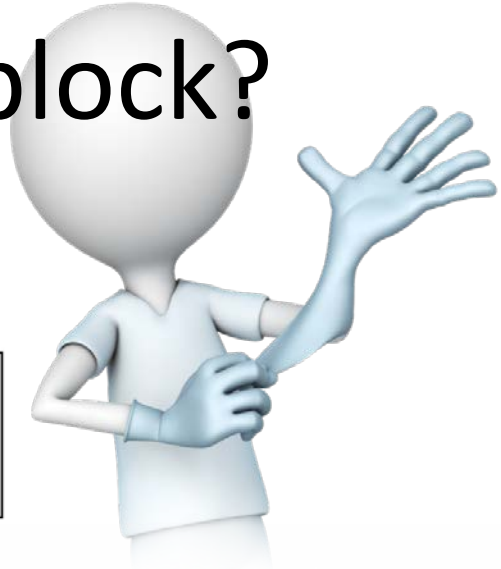
Champaneria, IJOA, 2016

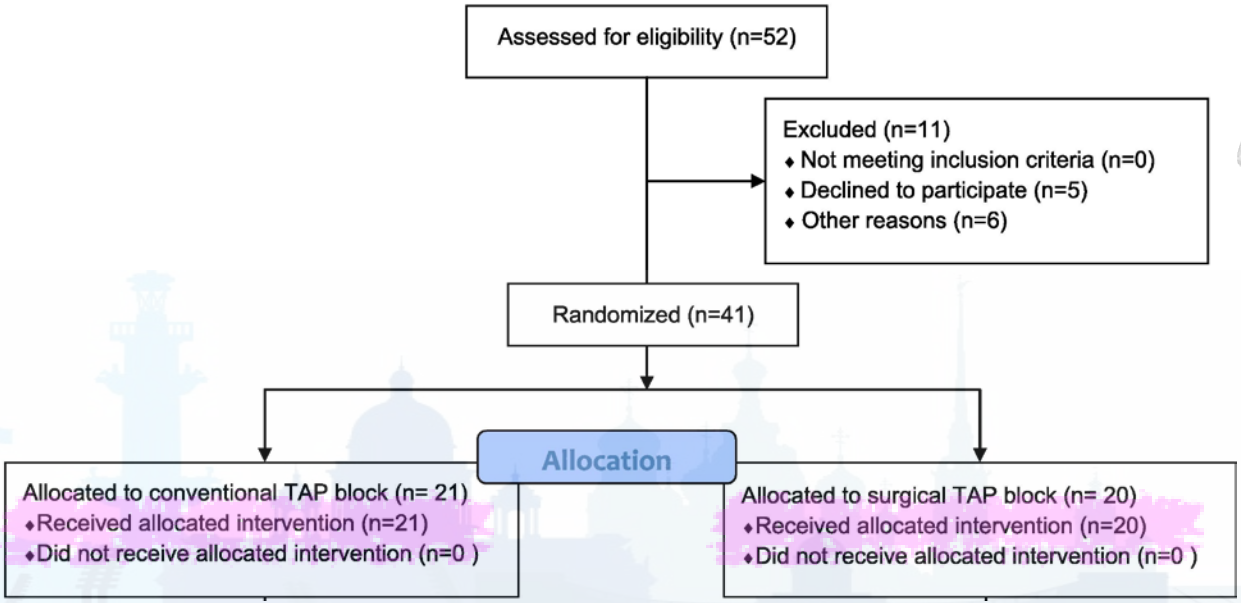
TAP blocks - summary

	REST PAIN	PAIN ON MOVEMENT	OPIOID SPARING
TAP block **vs** control	👍👍	👍👍	👍
TAP block **vs** intrathecal morphine	👎	👎	👎
TAP block + intrathecal morphine vs intrathecal morphine alone	ND	ND	ND

Abdallah, BJA, 2012
Mishriky, Can J Anesth, 2012
Champaneria, IJOA, 2016

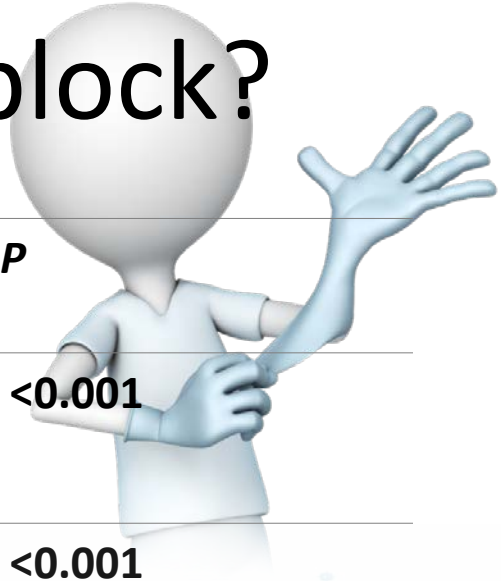
Who should do the TAP block?





Narasimhulu, IJOA, 2018

Who should do the TAP block?



	Surgical TAP	**Conventional TAP**	***P***
Time taken to perform the block	2.4 ± 0.5 min	12.1 ± 5.1 min,	**<0.001**
Time spent in OR after delivery of neonate	55.3 ± 10.2 min	77.9 ± 18.9 mi	**<0.001**
24-hour opioid use	2 (0-4)	3 (1-4)	**0.17**
Pain scores	28 (20-51)	25 (9-38)	**0.33**

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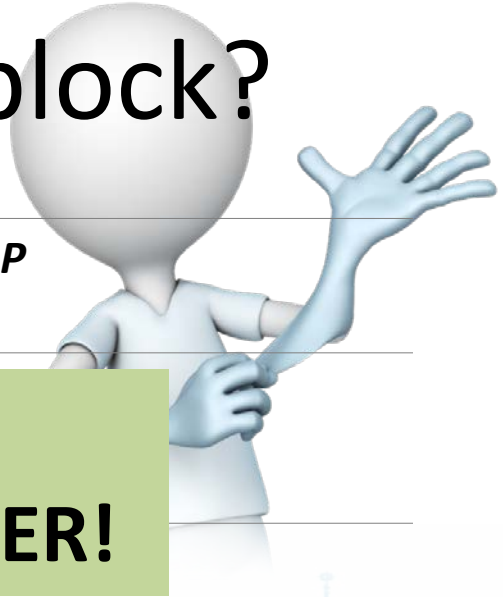

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TAKE HOME MESSAGE
– SURGICAL TAP BLOCKS QUICKER!

Wound infiltration

ORIGINAL ARTICLE

Local anaesthetic wound infiltration for postcaesarean section analgesia

A systematic review and meta-analysis

Oluwaseyi Adesope, Unyime Ituk and Ashraf S. Habib

- Some evidence of benefit in women who had not received neuraxial opioids
- Single dose wound infiltration - limited duration analgesia
- Catheter based techniques preferable
  - pain scores at rest and movement at 24 hours, reduced with catheter placement **below** but not above the fascia

Use of drugs and breastfeeding

Ideal analgesic

Opioid sparing
Synergistic action with other agents
Minimal side effects
Safe for breastfeeding?
Cost

Breast milk transfer potential

- Relative infant dose is a %, weight adjusted for the baby, normalizing the amount of drug
- Safe levels regarded as less than 10%
- The amount of breast milk produced in first few days after delivery is small – therefore amount of drug transfer is small

Relative infant doses

	Relative infant dose (%)
Morphine	5.8-10.7
Fentanyl	0.9-3
Oxycodone	1.6-3.7
Tramadol	2.4-2.9
Ibuprofen	0.1-0.7
Acetominophen	1.3-6.4

Kristensen, J Human Lactation, 2006
Dalal, Pediatric Aneth, 2014
Martin, Breastfeeding Medicie, 2018

Anything else

- Gabapentin
  - Sedation
  - Breast milk transfer (RID1.5-6.5)
- Ketamine
  - Single intra-op dose 10mg reduced pain scores
  - Significant side effects

Anything else

- Gabapentin
  - Sedation
  - [illegible]
- Ke
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INSUFFICIENT EVIDENCE TO RECOMMEND ROUTINE USE

Take home messages

1. Post caesarean section analgesia starts pre-op
2. Neuraxial opioids are a gold standard and should be used in preference to intravenous, intramuscular and oral opioids
3. Use a multimodal approach to minimise opioid intake

   - *give paracetomol/NSAID regularly*

   -consider adjuvant local anaesthetic techniques where neuraxial opioids not possible
4. Use the lowest effective dose of opioid analgesia

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Спасибо за ваше внимание