Content... *Interfascial Plane Block*

- Background
- **What options have we and what works?**
- **Evidence of benefits?**

Transversus Abdominis Plane block (TAP)

PECS block

Quadratus Lumborum block (QL)

Erector Spinae Plane block (ESP)

…. what's current

- Issues with IFP blocks
- Conclusion

What we know FOR PECS …. 2017

(Acta Anaesth. Belg., 2017, 68, 49-62)

A Qualitative Systematic Review of the Pectoral Nerves Block Type I and II

B. Versyck (*), P. Van Houwe (**), G. J. van Geffen, M. Van de Velde (*) and R. Slappendel (***)

Conclusion

'… These studies do not allow a viable and meaningful meta-analysis due to the ***limited number of trials***, too ***diverse endpoints*** and/or endpoints reported ***on different time points*** or intervals…

No RCT for PIFB, SIFB, TTP or SPB were identified

Woodworth et al…. RAPM Oct 2017

relevant studies. Results from our systematic literature search show encouraging and consistent evidence that the Pecs blocks produce effective analgesia, and reduce perioperative opioid consumption as compared to control groups without regional anesthesia, as well as other regional anesthesia techniques. Furthermore, the Pecs blocks provide favorable analgesic results in a wide range of indications including regional anesthesia and pain medicine technique. The absence of block-related complications reported in the literature may suggest that the Pecs blocks are easy to apply and safe for patients.

Anaesthesia 2019, 74, 663-673 doi:10.1111/anae.14607

Review Article

Analgesic efficacy of the Pecs II block: a systematic review and meta-analysis

B. Versyck,[1] **G.-J. van Geffen**[2] and **K.-J. Chin**[3]

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2 Principal Clinician, Department of Anaesthesia, Radboud University Medical Center, Nijmegen, the Netherlands
3 Associate Professor, Department of Anaesthesia, Toronto Western Hospital, University of Toronto, ON, Canada

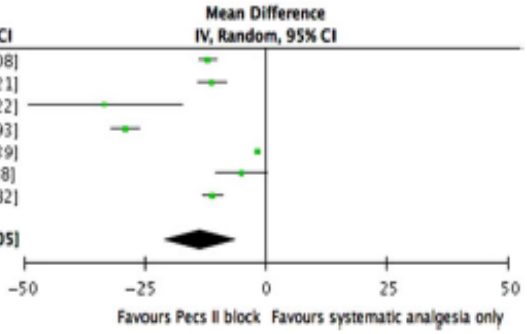
What we know FOR PECS 2019

13 RCTs (n= 815)
8 RCTs (n= 572) PECS II v systemic analgesia
5 RCTs (n= 243) PECS II v TPVB
Intermediate to high quality (9 of 13)

(a) – Pecs II block versus systematic analgesia alone

Study or Subgroup	Pecs II block Mean	SD	Total	Systematic analgesia only Mean	SD	Total	Weight	Mean Difference IV, Random, 95% CI
Bashandy 2015	8.7	5.14	60	20.7	5.58	60	15.3%	−12.00 [−13.92, −10.08]
Hassn 2016	4.7	3	30	15.9	7.8	30	15.1%	−11.20 [−14.19, −8.21]
Kim 2018	43.8	28.5	40	77	41.9	38	9.2%	−33.20 [−49.18, −17.22]
Kumar 2018	11.44	0.463	25	40.288	7.422	25	15.2%	−28.85 [−31.76, −25.93]
Neethu 2018	4.38	0.7174	30	6.09	0.53	30	15.5%	−1.71 [−2.03, −1.39]
Versyck 2017	9.16	10.15	45	14.23	14.38	40	14.4%	−5.07 [−10.42, 0.28]
Wang 2018	5.25	2.73	30	16.26	5.49	30	15.3%	−11.01 [−13.20, −8.82]
Total (95% CI)			**260**			**253**	**100.0%**	**−13.64 [−21.22, −6.05]**

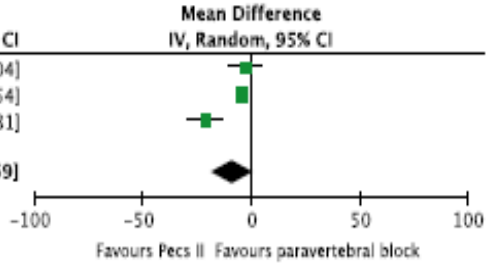
Heterogeneity: Tau² = 96.69; Chi² = 536.54, df = 6 (p < 0.00001); I² = 99%
Test for overall effect: Z = 3.52 (p = 0.0004)



(b) Pecs II block versus paravertebral block

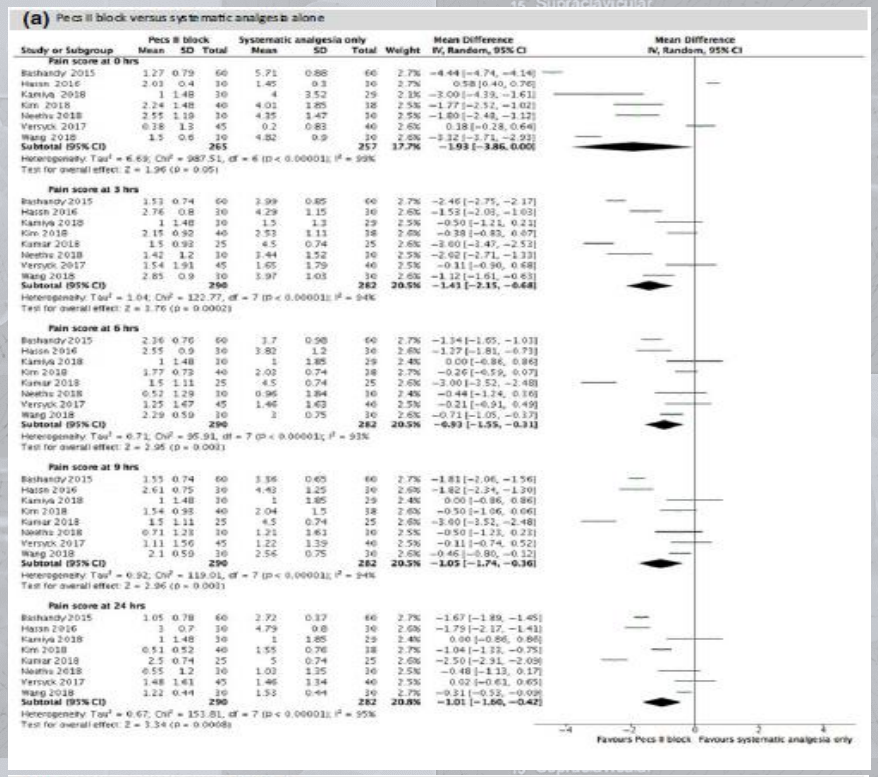
Study or Subgroup	Pecs II block Mean	SD	Total	Paravertebral block Mean	SD	Total	Weight	Mean Difference IV, Random, 95% CI
El-Sheikh 2016	10.8	10.59	20	13.29	13.53	20	31.3%	−2.49 [−10.02, 5.04]
Kulhari 2016	11.7	2.37	20	15.9	2.94	20	38.6%	−4.20 [−5.86, −2.54]
Wahba 2014	63	11.11	30	84	20	30	30.2%	−21.00 [−29.19, −12.81]
Total (95% CI)			**70**			**70**	**100.0%**	**−8.73 [−18.16, 0.69]**

Heterogeneity: Tau² = 59.24; Chi² = 15.90, df = 2 (p = 0.0004); I² = 87%
Test for overall effect: Z = 1.82 (p = 0.07)



PECS II ***SS reduction*** in OME
v control (7 RCTs; n= 513)
-13.64 mg (-21.22 to -6.05; p < 0.01)

No SS overall difference v PVB (3 RCTs; n= 140)
-8.73 mg (-18.16 to 0.69; p = 0.07)



PECS II v systemic (8 RCTs; n= 572)

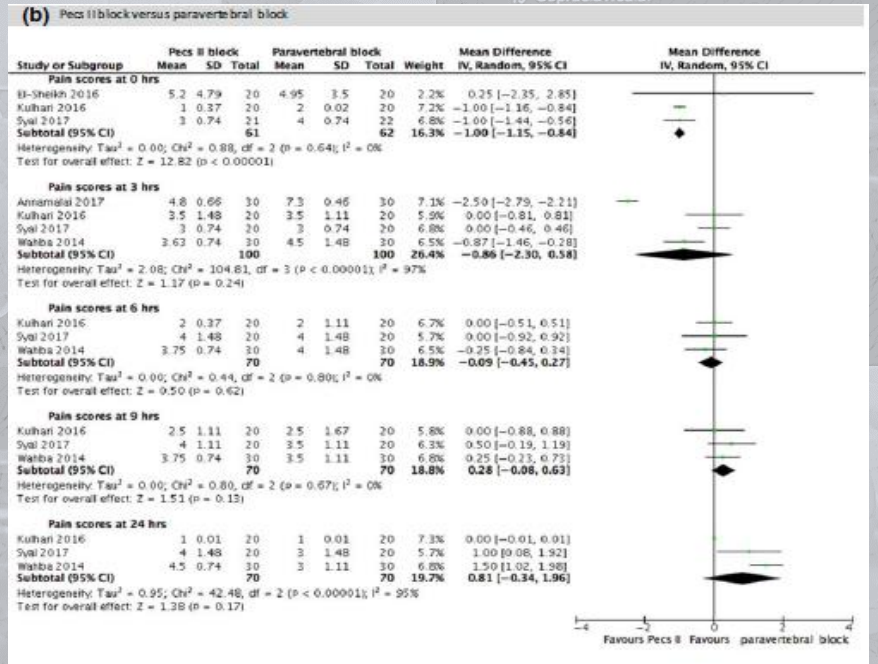
Pain scores

SS lower

at ALL time points

average

-1.23 (-1.93 to 0.93)



PECS v PVB (5 RCTs; n=243)

Significantly lower

IMMEDIATELY

-1.00 (-1.15 to -0.84) p < 0.01

NO DIFFERENCE AT LATER TIME POINTS

Intraoperative Fentanyl consumption

PECS v systemic analgesia (7 RCTs; n=522)

SIMILAR between both groups

-34.79 micg (-128.08 to -58.51); p = 0.46

PECS v PVB (2 RCTs; n= 100)

PECS consumed less opioids intra-op

-21.82 micg (-31.43 to -12.22); p < 0.01

Time to first request

PECS v Systemic analgesia (4 RCTs; n= 290)

PECS SS prolongation in TFA

301 (104-495) p < 0.01

PECS v PVB (4 RCTs;; n= 183)

No SS difference

-7 (-126 to 112) p= 0.91

PONV

PECS v both groups (7 RCTs; n= 477)

NO SS

NO COMPLICATIONS (8 RCTs; n=288)

Conclusion PECS II

significantly *improves quality of analgesia and reduces opioid consumption* compared with systemic analgesia alone.

simpler and safer alternative to PVB *do not come at the expense of reduced analgesic efficacy.*

no significant difference in pain scores, time to first analgesic request or 24-h opioid consumption between *PECS II and PVB*

CHRONIC AND INTERVENTIONAL PAIN

BRIEF TECHNICAL REPORT

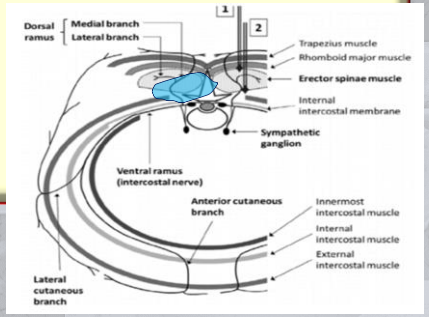
Regional Anesthesia and Pain Medicine • Volume 41, Number 5, September-October 2016

The Erector Spinae Plane Block

A Novel Analgesic Technique in Thoracic Neuropathic Pain

Mauricio Forero, MD, FIPP, Sanjib D. Adhikary, MD,† Hector Lopez, MD,‡ Calvin Tsui, BMSc,§ and Ki Jinn Chin, MBBS (Hons), MMed, FRCPC||*

- Forero *RAPM 2016*
- Inter-fascial plane block (at T5)
- Provide extensive multi-dermatomal sensory block (clinical T2-T9; cadaveric C7-T8)
- Proposed site of action most likely at dorsal and ventral rami of thoracic spinal nerves



Mechanism of action…

- block of ventral and dorsal rami via paravertebral route (through muscular and connective tissue gaps via costotransverse foramen)

'Superficial' approach to Paravertebral space

- ? Posterior equivalent to rectus sheath

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Forero et al postulated presence of ventral spread through costotransverse foramen based on clinical and recon CT cadaver spread findings

Presence of spread via anatomical gaps through perforations between intertransverse connective tissues to intervertebral foramina and epidural spaces

Lateral extensions through intercostal spaces

REGIONAL ANESTHESIA AND ACUTE PAIN

BRIEF TECHNICAL REPORT

Erector Spinae Plane Block Versus Retrolaminar Block

A Magnetic Resonance Imaging and Anatomical Study

Sanjib Das Adhikary, MD, Stephanie Bernard, MD,† Hector Lopez, MD,‡ and Ki Jinn Chin, FRCPC§*

REGIONAL ANESTHESIA AND ACUTE PAIN

ORIGINAL ARTICLE

A Cadaveric Study Investigating the Mechanism of Action of Erector Spinae Blockade

Jason Ivanusic, PhD, Yasutaka Konishi, MD,†‡ and Michael J. Barrington, PhD, MBBS, FANZCA†§*

NO SPREAD TO VENTRAL RAMI…

Extensive cephalo-caudal spread

Lateral extension to intercostal spaces to angle of ribs

Evidence so far...

- 78 reports and small series, 5 cadaveric, 2 RCTs *Tsui 2018*
- Thoraco-abdominal procedures
  (Open and laparoscopic upper and lower abdominal)
- Extended to lumbar and cervical levels *Elkoundi 2019, Kline 2018, Tulgar 2018, Evans 2018*
- Acute & Chronic pain
  (suggestive of somatic and visceral)

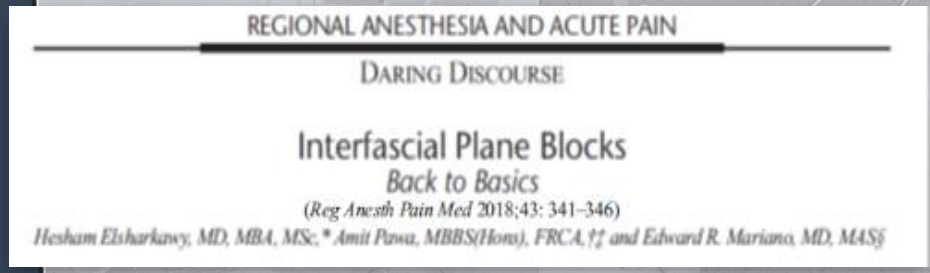
- Although mechanism is unknown, pain alleviation as reported is too profound to be overlooked

'Peripheral regional technique with central neuraxial capabilities'

- Await further sharing of experience
- Remains an alternative technique with huge potential

Unresolved issues surrounding inter-fascial blocks?...

Questions yet to be answered...



REGIONAL ANESTHESIA AND ACUTE PAIN

DARING DISCOURSE

Interfascial Plane Blocks

Back to Basics

(*Reg Anesth Pain Med* 2018;43: 341–346)

Hesham Elsharkawy, MD, MBA, MSc, Amit Pawa, MBBS(Hons), FRCA,†‡ and Edward R. Mariano, MD, MAS§*

Priority areas- anatomy, function, access and outcome;

Detailed micro-anatomy on properties and behaviour of fascial layers…. And of different location

Where and why LA spreads the way it does…. Consistency/reliability

Effect of spontaneous v mechanical ventilation and position….

“Big data” research … over time….

Conclusion *Interfascial Plane Blocks….*

Evidence suggesting…

Interfascial Plane blocks…

- ***moderate to high quality level evidence*** for immediate perioperative ‘***efficacy***’ benefits;
- apparently ***safe*** with ***low incidence of complications***
- ***TAP*** block ***appears superior*** but effects are ***clinically marginal***
- Addition of ***PECS*** improves ***immediate perioperative analgesic effects..*** as ***efficacious*** as ***PVB***

Conclusion *Interfascial Plane Blocks….*

- ***QL*** appears to be ***clinically superior*** than TAP for abdominal procedures, through ***unclear mechanisms.***
- ***QL*** and ***ESP*** have the ***potential*** to replace PVB or Epidural
- Further ***understanding of fascial characteristics*** may be key in refining our 'knowledge' and behaviour of fascial blocks