# **Content...** Interfascial Plane Block

### Background

What options have we and what works?
Evidence of benefits?

Transversus Abdominis Plane block (TAP)
PECS block

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 metaanalysis 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

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**Review Article** 

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

B. Versyck, <sup>1</sup>G.-J. van Geffen<sup>2</sup> and K.-J. Chin<sup>3</sup>

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## 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

	Peo	s II bloc	k	Systemati	Systematic analgesia only			Mean Difference	Mean Difference			
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, R	andom, 95% (		
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; Cf	$hi^2 = 536$	.54, df	= 6 (p < 0.	00001 r l <sup>2</sup> =	99%						
Test for overall effect:								-50	-25	0	25	50
									Favours Pecs II	block Favours	systematic analge	sia only

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)

#### (b) Pecs II block versus paravertebral block

	Pec	s II blo	ck	Parave	rtebral b	olock		Mean Difference	Mean Difference			
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV,	Random, 95%	6 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; C	hi² = 1	5.90, df	= 2 (p =	0.0004)	; I <sup>2</sup> = 87	7%	-		-		
Test for overall effect:	Z = 1.82	(p = 0.	07)					-100	-50	0	50	100
									Favours Pecs	II Favours para	wertebral bloc	k –

	Pecs II	block	Systemati	ic analoesia only		Mean Difference	Mean Difference
Fain score at 0 h	Mean	SD Total	Mean			IV, Random, 95% CI	IV, Random, 95N CI
Rashandy 2015	127 0	79 60	5.71	0.88	66 2.7%	-4.44[-4.74, -4.14] -	
Haish 2016		0.4 10	1.45		16 2.7%	0.58 (0.40, 0.76)	
Kamilia 2018	1 1		4			-3.00 [-4.39, -1.61]	
Km 2018	2.24 1		4.01			-1.77 (-2.52, -1.02)	
Neethy 2018			4.35				
	2.55 1					-1.00[-2.40, -3.17]	
Versyck 2017		1.3 45	0.2		40 2.6%	0.18[=0.28, 0.64]	
Wang 2018	1.5 (	0.6 10	4.82		2.6%	-3.32 (-3.71, -2.93)	
Subtotal (95% CI) Heteroperiaty: Tau <sup>4</sup> =	6.68 CH2 -	265	d = 6 m =		57 17.7%	-1.93 [-3.86, 0.00]	
Test for overall effect. a							
Pain score at 3 h							
Rashandy 2015	1.53 0.		2.99		60 2.7%		
Hassn 2016	2.76 (		4.29		2.6%		
Kamiye 2018		48 30	1.5		29 2.5%	-0.50 (-1.21, 0.23)	
Kim 2018	2.15 0.		2.53	1 11	18 2.6%	-038[-0.83, 0.07]	
Kumar 2018	15 0		4.5		25 2.6%		
Neethy 2018		1.2 10	3.44		10 2.5%		
Versyck 2017	154 1		1.65		40 2.5%		
Ware 2018	2.85		3.97		2.6%		
Subtotal (95% CI)		290				-1.41 [-2.15, -0.68]	-
Heterogeneity, Tauf -	1 04 102 -		a TIM			and the state	
Test for overall effect: i				and a second second second	53 C		
Pain score at 6 !							
Pashandy 2015	2.36 0	76 60	3.7	0.98	2.7%	-1.341-1.65, -1.031	
Hadon 2016	2.55 0	0.9 30	3.82	1.2	2.6%	-1.274-1.81, -0.733	
Kamiya 2018	1 1	48 10	1	1.85	29 2.4%	0.001-0.86, 0.863	
Cm 2018	1.77 0	73 40	2.02	0.74	18 2.7%	-0.26[-0.59, 0.07]	-
Kamer 2018	15 1		4.5		25 2.6%		
Nextby 2018		29 10	0.96		10 2.4%	-0.44[-1.24, 0.16]	
Versyck 2017	1.25 1		1.46		46 2.5%	-0.21[-0.91, 0.49]	
Wand 2018	2.29 0		3.99		10 2.6%		
Subtotal (95% CI)	2.2.2 0	290			12 20.5%		
Hererogenalty, Tau? =	a					-419.9 f. 219.92 - 019.43	
Test for overall effect.			1 = 7 (p < p	0000121 = 331			
Pain score at 91	Ins						
Pashandy 2015	1.55 0.	74 60	3.36	0.65	60 2.7%	-1.81[-2.06, -1.56]	
Hatsn 2016	2.61 0.	75 30	4.43	1.25	2.6%		and the second sec
Kamiya 2018	1 1		1		2.4%	0.001-0.86, 0.86]	
Cm 2018	154 0		2.04		18 2.65	-0.50 [-1.06, 0.06]	
	15 1		4.5		25 2.6%		
Campar 2018	0.71 1		1.21		10 2.55		
					40 2.5%		
Kamar 2018 Neeths 2018 Kerosk 2017		24 32					
Neaths 2018 Versyck 2017	111 1		1.22				
Neeths 2018 Versyck 2017 Wang 2018		59 30	2.56	0.75	2.6%	-0.46 -0.80, -0.12	
Neaths 2018 Versyck 2017	1.11 1 2.1 0 0.92, CM <sup>2</sup> -	59 10 290	2.56	0.75	10 2.6% 82 20.5%	-0.46 -0.80, -0.12	-
Neetho 2018 Versyck 2017 Wang 2018 Subtotal (95% CI) Hererogeneity: Tav <sup>4</sup> = Tast for overall effect 2	1.11 1 2.1 0 0.92; CW <sup>2</sup> - 2 = 2.96 (0	59 10 290	2.56	0.75	10 2.6% 82 20.5%	-0.46 -0.80, -0.12	-
Neetha 2018 Versyck 2017 Wang 2018 Subtotal (25% CI) Hererogeneity Tas <sup>1</sup> = Tast for overall effect 2 Pain score at 24	1.11 1 2.1 0 0.92, Ch <sup>2</sup> - 2 = 2.96 (0 hrs	59 10 290 119.01, = 0.0011	2.56 df = 7 (p <	0.75 0.00001; i <sup>2</sup> = 9	30 2.6% 82 20.5% %	-0.46 [-0.80, -0.12] -1.05 [-1.74, -0.36]	-
Neethu 2018 Versyck 2017 Wang 2018 Subtotal (95% CI) Hererospensity Tas <sup>1</sup> – Test for averal effect 3 Pain score at 24 Excitantly 2015	1.11 1 2.1 0 0.92, Ch <sup>2</sup> - 2 = 2.96 (0 hrs 1.05 0	50 10 290 119.01, * 0.0011 78 60	2.56 df = 7 (p < 2.72	0.75 2 0.00001; t <sup>2</sup> = 2 0.37	10 2.6% 82 20.5% %	-0.45 [-0.80, -0.12] -1.05 [-1.74, -0.36] -1.67 [-1.89, -1.45]	-
Neeths 2018 Versyck 2017 Wang 2018 Subtotal (95% CI) Herenogenety: Tau <sup>4</sup> – Tast for overall effect : Pain score at 24 Richandy 2015 Hastn 2016	1.11 1 2.1 0 0.92, Ch <sup>2</sup> - 2 = 2.96 (D hrs 1.05 0 3 (C)	59 10 299 119.01, -0.00011 78 60 0.7 10	2.56 d' = 7 (p < 2.72 4.79	0.75 <b>2</b> 0.00001(; t <sup>2</sup> = 2- 0.17 0.8	240 2.6% 62 20.5% 66 2.7% 19 2.6%	-0.45 [-0.80, -0.12] -1.05 [-1.74, -0.36] -1.67 [-1.89, -1.45] -1.79 [-2.17, -1.41]	-
Nearns 2018 Versys 2017 Wang 2018 Subtotal (95% CD) Hereropenery Tou <sup>1</sup> = Tast for owerall effect : Pain score at 24 Richardy 2015 Hastin 2016	$\begin{array}{c} 1.11 & 1 \\ 2.1 & 0 \\ 0.92 & Ch^2 \\ 2 & 2.96 & (0 \\ hrs \\ 1.05 & 0 \\ 3 & (1 \\ 1 & 1 \\ \end{array}$	59 10 299 119.01, ~ 0.00011 78 60 0.7 10 48 30	2.56 d' = 7 (p < 2.72 4.79 1	0.75 2 0,00001; i <sup>2</sup> = 2 0.17 0.8 1.85	240 2.6% 62 20.5% 66 2.7% 66 2.6% 26 2.6% 25 2.4%	-0.46 [-0.80, -0.12] -1.03 [-1.74, -0.36] -1.67 [-1.89, -1.45] -1.79 [-2.17, -1.41] 0.00 [-0.86, 0.86]	-
Neethy 2018 Yersyck 2017 Wang 2018 Subtotal (95% CD) Heterogenetiky Tou <sup>4</sup> = Tast for overall effect 1 <b>Pain score at 24</b> Richardy 2015 Hastin 2016 Karniya 2018 Karniya 2018	1.11 1 2.1 0 0.92, Chi <sup>2</sup> - 2 = 2.96 (p hrs 1.05 0 3 ( 1.1 0.51 0	50 10 290 119.01, = 0.0001 78 60 0.7 30 48 30 52 40	2.56 d' = 7 (p < 2.72 4.79 1 1.55	0.75 <b>2</b> 0.00001; i <sup>2</sup> = 2 0.17 0.8 1.85 0.76	240 2.6% 82 20.5% 1% 166 2.7% 16 2.6% 25 2.4% 18 2.7%	-0.46 [-0.80, -0.12] -1.05 [-1.74, -0.36] -1.67 [-1.89, -1.45] -1.75 [-2.17, -1.41] 0.00 [-0.86, 0.86] -1.04 [-1.33, -0.75]	
Neethris 2018 Versyck 2017 Wang 2018 Subtrait (95% CB Hereirogeneity: Tas <sup>2</sup> = Tast for owerall effect: 2 Pain score at 24 Bachandy 2015 Hassa 2016 Kamiya 2018 Kamiya 2018 Kamiya 2018	111 1 21 0 0.92, Ch <sup>2</sup> - 2 - 2.96 (0 hrs 1.05 0 1 1 0.51 0 2.5 0	59 10 299 119.01, * 0.0001 78 60 0.7 10 18 50 52 40 74 25	2.56 df = 7 (p < 2.72 4.79 1.35 5	0.75 <b>2</b> 0.00001; i <sup>2</sup> = 3 <sup>4</sup> 0.8 1.85 0.76 0.74	240 2.6% 52 20.5% 546 2.7% 546 2.7% 549 2.6% 549 2.6% 549 2.6% 549 2.6%	-0.46 [-0.80, -0.12] -1.05 [-1.74, -0.36] -1.67 [-1.89, -1.45] -1.79 [-2.17, -1.41] 0.00 [-0.86, 0.86] -1.04 [-1.33, -0.75] -2.50 [-2.91, -2.09]	
Nearthn 2008 Versyck 2017 Rang 2018 Subtratal (1975 CD) Herenogenety, Tau <sup>4</sup> – Pain score at 24 Bestinasty 2018 Harsin 2018 Kaming 2018 Kaming 2018 Naming 2018 Naming 2018	1,11,1 2,1,0 0,92,04 <sup>2</sup> - 2 = 2.96 (0 hrs 1,05,0 2,51,0 0,55,5	59 10 299 119.0L - 0.0011 78 60 0.7 10 48 10 52 40 74 25 12 10	2.56 af = 7 (p < 2.72 4.79 1 1.35 5 1.03	0.75 2 0.00001; i <sup>2</sup> = 2 0.17 0.8 1.85 0.76 0.74 1.35	10 2.6% 82 20.5% 14 16 2.7% 10 2.6% 15 2.6% 18 2.7% 18 2.7% 18 2.5% 10 2.5%	-0.46 [-0.80, -0.12] -1.05 [-1.74, -0.36] -1.67 [-1.89, -1.45] -1.79 [-2.17, -1.41] 0.00 [-0.86, 0.86] -1.04 [-1.18, -0.75] -2.50 [-2.31, -2.03] -0.48 [-1.13, 0.17]	
Neetins 2018 Wang 2018 Subtatal (95% CI) Herentgenety: Tar <sup>1</sup> = Tart for averall effect : Pain score at 24 Rashandy 2015 Hassa 2018 Kim 2018 Kannar 2018 Nearing 2018 Nearing 2018 Nearing 2018	111 1 21 0 0.92, Ch <sup>2</sup> - 2 + 2.96 (0 hrs 105 0 1 1 0.51 0 2.5 0 1.48 1	59 10 299 119.0L - 0.0001 78 60 0.7 10 48 50 52 40 74 25 12 10 61 45	2.56 df = 7 (p < 2.72 4.79 1 1.55 5 1.02 1.46	0.75 2 0,00001; <sup>2</sup> - 3 0.8 0.8 0.76 0.74 1.35 1.34	210 2.6% 220.5% 20.5%	$\begin{array}{c} -0.46\left[-0.80, -0.12\right]\\ -1.05\left[-1.74, -0.36\right]\\ \end{array}\\ \begin{array}{c} -1.67\left[-1.89, -1.45\right]\\ -1.79\left[-2.17, -1.41\right]\\ 0.01\left[-0.86, 0.96\right]\\ -1.04\left[-1.32, -0.75\right]\\ -2.50\left[-2.31, -2.09\right]\\ \end{array}$	
Needma 2018 Versnok 2017 Wang 2018 Subtoal (25% CD) Heerogenesty Tou <sup>2</sup> = Tail for overall effect : Pain score at 24 Basinasty 2015 Hasina 2016 Kanina 2018 Nainar 2018 Versnok 2018	1,11,1 2,1,0 0,92,04 <sup>2</sup> - 2 = 2.96 (0 hrs 1,05,0 2,51,0 0,55,5	59 30 290 119.01, = 0.0001 78 60 0.7 30 48 30 52 40 74 25 12 30 61 45 44 30	2.56 af = 7 (p < 2.72 4.79 1 1.35 5 1.03	0.75 2 0,00001; i <sup>2</sup> + 2 0.17 0.8 1.85 0.76 0.74 1.35 1.34 0.44	210 2.6% 82 20.5% 1% 1% 1% 1% 1% 1% 1% 1% 1% 2.7% 1% 2.5% 1% 2.5% 1% 2.5% 1% 2.5% 1% 2.5% 2.	$\begin{array}{c} -0.46] = -0.80, -0.12] \\ -1.05] = -1.74, -0.36] \\ \end{array}$	
Neetins 2018 Wang 2018 Subtatal (95% CI) Herentgenety: Tar <sup>1</sup> = Tart for averall effect : Pain score at 24 Rashandy 2015 Hassa 2018 Kim 2018 Kannar 2018 Nearing 2018 Nearing 2018 Nearing 2018	111 1 21 0 0.92, Ch <sup>2</sup> - 2 = 2.96 (0 hrs 1.05 0 3 ( 1 1 0.51 0 0.55 1 1.48 1 1.22 0	59 30 290 119.01, * 0.0001 78 60 0.7 30 48 30 52 40 74 25 12 10 61 45 290	2.56 df = 7 (p < 4.79 1 1.55 1.03 1.46 1.53	0.75 2 0.00001; i <sup>2</sup> - 9 0.85 1.85 0.76 0.74 1.35 1.34 0.44 2	240 2.6% 52 20.5% 54 20.5% 54 2.0% 55 2.6% 55 2.6% 56 2.5% 56 2.5% 56 2.5% 56 2.5% 56 2.5% 56 2.5% 57 20.8% 57 20.8% 58 2.5% 59 2.6% 50 2.5% 50 2.5%	$\begin{array}{c} -0.46] = -0.80, -0.12] \\ -1.05] = -1.74, -0.36] \\ \end{array}$	

#### (b) Pecs II block versus paraverte brai block

	Pecs II block			Paravertebral block				Mean Difference	Mean Difference	
tudy or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% Cl	
Pain scores at 0	hrs		1000	0.035			14.4.5			
I-Sheikh 2016	5.2	4.79	20	4.95	3.5	20	2.2%	0.25 [-2.35, 2.85]		
ulhari 2016	1	0.37	20	2	0.02	20	7.2%	-1.00[-1.16, -0.84]	-	
val 2017	3	0.74	21	-4	0.74	22		-1.00 [-1.44, -0.56]		
ubtotal (95% CI)			61			62	16.3%	-1.00 [-1.15, -0.84]	•	
leterogensity Tau <sup>2</sup> =					641;12	= 086				
est for overall effect: 2	2 = 12.82	(D < 0	00000	11						
Pain scores at 3	hrs									
vinamalai 2017	4.8	0.66	30	7.3	0.46	30	7.1%	-2.501-2.792.211		
Julhari 2016	3.5	1.48	20	3.5	1.11	20	5.5%	0.00[-0.81, 0.81]		
val 2017	3	0.74	20	3	0.74	20	6.8%	0.00 [-0.46, 0.46]		
Vahibs 2014	3.63	0.74	30	4.5	1.48	30		-0.87 [-1.46, -0.28]		
ubtotal (95% CI)			100			100	26.4%	-0.86 [-2.30, 0.58]		
ieterogeneity: Tau <sup>3</sup> = est for overall effect. 2				r = 3 (P	c 0.000	01χ ( <sup>2</sup> -	97%			
Pain scores at 6	hrs									
ulhari 2016	2	0.37	20	2	1.11	20	6.7%	0.00[-0.51, 0.51]		
val 2017	4	1.48	20	4	1.48	20	5.7%	0.001-0.92, 0.921		
Vahba 2014	3.75	0.74	3.0	4	1.48	30	6.5%			
ubtotal (95% CI)			70			70	18.9%	-0.09 [-0.45, 0.27]	+	
leterogeneity: Tau <sup>1</sup> + 'est for overall effect: 1				2 (0 = 0	801; I <sup>2</sup>	- 0%				
Pain scores at 9	hes									
ulhari 2016	2.5	1.11	20	2.5	1.67	20	5.8%	0.00[-0.88, 0.88]		
yal 2017	- 4	1.11	20	3.5	1.11	20	6.3%	0.50 [-0.19, 1.19]	++	
Valiba 2014	3.75	0.74	30	3.5	1 11	30	6.8%	0.25 [-0.23, 0.73]		
ubtotal (95% CI)			70			70	18.8%	0.28 [-0.08, 0.63]	•	
leterogeneity: Tau <sup>2</sup> = 'est for overall effect: 3				2 (9 = 0	67g 1 <sup>2</sup>	= 0%			2.2.4	
Pain scores at 2	4 hrs									
ulhari 2016	1	0.01	20	1	0.01	20	7.3%	0.00 [-0.01, 0.01]		
val 2017		1.48	2.0	3	1.48	20	5.7%	1.00 [0.08, 1.92]		
Vahba 2014	4.5	0.74	30	3	1.11	30	6.8%	1 50 [1.02, 1.98]		
ubtotal (95% CI)			70			70	19.7%	0.81 [-0.34, 1.96]		
leterogeneity: Tau <sup>3</sup> =				= 2 (P <	0.0000	1% l <sup>2</sup> = 1	95%			
est for overall effect: 2	t = 1.3B	(0 = 0.)	1/1							

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.

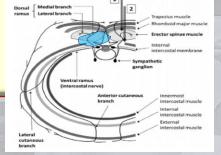
*no significant difference* in pain scores, time to first analgesic request or 24-h opioid consumption between *PECS II and PVB* 

#### 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

CHRONIC AND INTERVENTIONAL PAIN

BRIEF TECHNICAL REPORT

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//

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

ORIGINAL ARTICLE

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

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

REGIONAL ANESTHESIA AND ACUTE PAIN

BRIEF TECHNICAL REPORT

Erector Spinae Plane Block Versus Retrolaminar Block A Magnetic Resonance Imaging and Anatomical Study

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### 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

REGIONAL ANESTHESIA AND ACUTE PAIN

DARING DISCOURSE

Unresolved issues surrounding inter-fascial blocks?... Questions yet to be answered...

Interfascial Plane Blocks

Back to Basics (Reg Anesth Pain Med 2018;43: 341–346) Hesham Elsharkawy, MD, MBA, MSc, \* Amit Pawa, MBBS(Hons), FRCA.11 and Edward R. Mariano, MD, MAS8

# <u>Priority areas- anatomy, function, access and outcome;</u>

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