

Hot Topics

Regionalanestesi

Christian Bergek
Spec.läk
Anestesi- och Operationskliniken
Linköping



Nya preparat?

- Exparel
 - Bupivakaindepå i liposomer
 - Multivesikulärt
 - Ca 3% fritt
 - FDA-godkänt för *sårinfiltration*



Expert Opin. Pharmacother. (2014) 15(11):1535-1542



Nya preparat?

REVIEW



Liposomal bupivacaine for regional anesthesia

Anna Uskova and Jessica E. O'Connor

Purpose of review

Using a regional block in a multimodal approach to postoperative analgesia management involves addressing, which local anesthetic and how much should be used to ensure adequate pain relief to reduce related morbidity and mortality. This article will review literature surrounding the recently approved formulation of slow release liposomal bupivacaine, define its proven benefits, and identify ongoing studies to further examine the utility of this novel formulation by various routes.

Recent findings

Recent Phase II and III clinical trials have demonstrated the ability of liposomal bupivacaine to provide prolonged analgesia, maintain a high safety profile in therapeutic doses, and decrease opioid requirements when compared with placebo in local infiltration applications for up to 24 h. Between 24 and 72 h after study drug administration, there was minimal to no difference between EXPAREL and placebo treatments on mean pain intensity. Conventional bupivacaine or ropivacaine groups (current standard practice in many hospitals in the USA) were not compared. In addition, the analgesic efficacy, cost-effectiveness, and safety profile of liposomal bupivacaine has not thoroughly been studied in various standard clinical settings such as perineural, intrathecal, and epidural administration.

Summary

Current published data do not provide superior clinical results for EXPAREL over conventional bupivacaine based upon the lack of adequately powered multicentered clinical trials with comparison groups. Further investigation is necessary to identify the analgesic efficacy and safety profile of liposomal bupivacaine versus standard local anesthetics and to define the optimal clinical indication for liposomal bupivacaine administration in regional anesthesia.

Keywords

bupivacaine, DepoFoam bupivacaine, EXPAREL, liposomal bupivacaine



Nya preparat?

REVIEW

Summary



Liposomal bupivacaine for regional anesthesia

Current published data do not provide superior clinical results for EXPAREL over conventional bupivacaine based upon the lack of adequately powered multicentered clinical trials with **comparison groups**. Further investigation is necessary to identify the analgesic efficacy and safety profile of liposomal bupivacaine versus standard local anesthetics and to define the optimal clinical indication for liposomal bupivacaine administration in regional anesthesia.

Purpose of review

Using a regional block in a multimodal approach to postoperative analgesia management involves careful morbidity and mortality. This article will review literature surrounding the recently approved formulation of slow release liposomal bupivacaine, define its proven benefits, and identify ongoing studies to further examine the utility of this novel formulation by various routes.

Recent findings

Recent Phase II and III clinical trials have demonstrated the ability of liposomal bupivacaine to provide prolonged analgesia, maintain a high safety profile in therapeutic doses, and decrease opioid consumption. However, 72 h after study drug administration, there was minimal to no difference between EXPAREL and placebo treatments on mean pain intensity. Conventional bupivacaine or ropivacaine groups (current standard of care) have not been thoroughly studied in various standard clinical settings such as perineural, intrathecal, and epidural administration.

Conclusion

Current published data do not provide superior clinical results for EXPAREL over conventional bupivacaine based upon the lack of adequately powered multicentered clinical trials with comparison groups. Further investigation is necessary to identify the analgesic efficacy and safety profile of liposomal bupivacaine versus standard local anesthetics and to define the optimal clinical indication for liposomal bupivacaine administration in regional anesthesia.

Keywords

bupivacaine, DepoFoam bupivacaine, EXPAREL, liposomal bupivacaine

Curr Opin Anesthesiol 2015, 28:693-597

Liposomal Bupivacaine as a Single-Injection Peripheral Nerve Block: A Dose-Response Study

Brian M. Ilfeld, MD, MS (Clinical Investigation), Nisha Malhotra, MD, Timothy J. Furnish, MD, Michael C. Donohue, PhD, and Sarah J. Madison, MD

BACKGROUND: Currently available local anesthetics approved for single-injection peripheral nerve blocks have a maximum duration of <24 hours. A liposomal bupivacaine formulation (EXPAREL®, Pacira Pharmaceuticals, Inc., San Diego, CA), releasing bupivacaine over 96 hours, recently gained Food and Drug Administration approval exclusively for wound infiltration but not peripheral nerve blocks.

METHODS: Bilateral single-injection femoral nerve blocks were administered in healthy volunteers ($n = 14$). For each block, liposomal bupivacaine (0–80 mg) was mixed with normal saline to produce 30 mL of study fluid. Each subject received 2 different doses, 1 on each side, applied randomly in a double-masked fashion. The end points included the maximum voluntary isometric contraction (MVIC) of the quadriceps femoris muscle and tolerance to cutaneous electrical current in the femoral nerve distribution. Measurements were performed from baseline until quadriceps MVIC returned to 80% of baseline bilaterally.

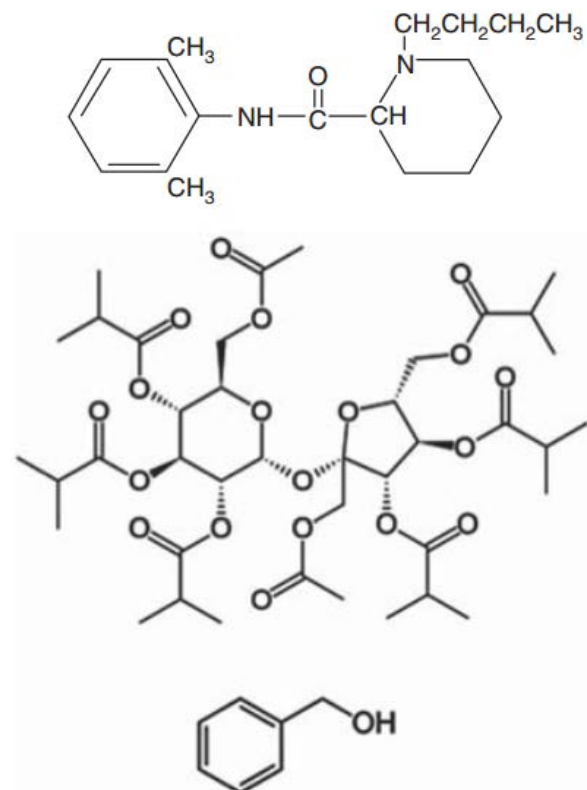
RESULTS: There were statistically significant dose responses in MVIC (0.09%/mg, SE = 0.03, 95% confidence interval [CI], 0.04–0.14, $P = 0.002$) and tolerance to cutaneous current (–0.03 mA/mg, SE = 0.01, 95% CI, –0.04 to –0.02, $P < 0.001$), however, in the opposite direction than expected (the higher the dose, the lower the observed effect). This inverse relationship is biologically implausible and most likely due to the limited sample size and the subjective nature of the measurement instruments. While peak effects occurred within 24 hours after block administration in 75% of cases (95% CI, 43%–93%), block duration usually lasted much longer: for bupivacaine doses >40 mg, tolerance to cutaneous current did not return to within 20% above baseline until after 24 hours in 100% of subjects (95% CI, 56%–100%). MVIC did not consistently return to within 20% of baseline until after 24 hours in 90% of subjects (95% CI, 54%–100%). Motor block duration was not correlated with bupivacaine dose (0.06 hour/mg, SE = 0.14, 95% CI, –0.27 to 0.39, $P = 0.707$).

CONCLUSIONS: The results of this investigation suggest that deposition of a liposomal bupivacaine formulation adjacent to the femoral nerve results in a partial sensory and motor block of >24 hours for the highest doses examined. However, the high variability of block magnitude among subjects and inverse relationship of dose and response magnitude attests to the need for a phase 3 study with a far larger sample size, and that these results should be viewed as suggestive, requiring confirmation in a future trial. (Anesth Analg 2013;117:1248–56)



Nya preparat?

- SABER-Bupivakain
 - Sukros-acetat-isobutyrat
 - Bensyl-alkohol
 - 12% bupivakain
 - Ej FDA-godkänt!



Expert Opin. Pharmacother. (2014) 15(11):1535-1542



Nya preparat?

- Operatörernas räddning?
- För få studier
- För små studier
- Jämförelse mot vanliga blockader, blockadkatetrar???



Dexametason – perineuralt?



Dexametason – perineuralt?

British Journal of Anaesthesia **112** (3): 427–39 (2014)
Advance Access publication 10 January 2014 · doi:10.1093/bja/aet417

BJA

Effects of dexamethasone as a local anaesthetic adjuvant for brachial plexus block: a systematic review and meta-analysis of randomized trials

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Dexametason – perineuralt?

Analgesi

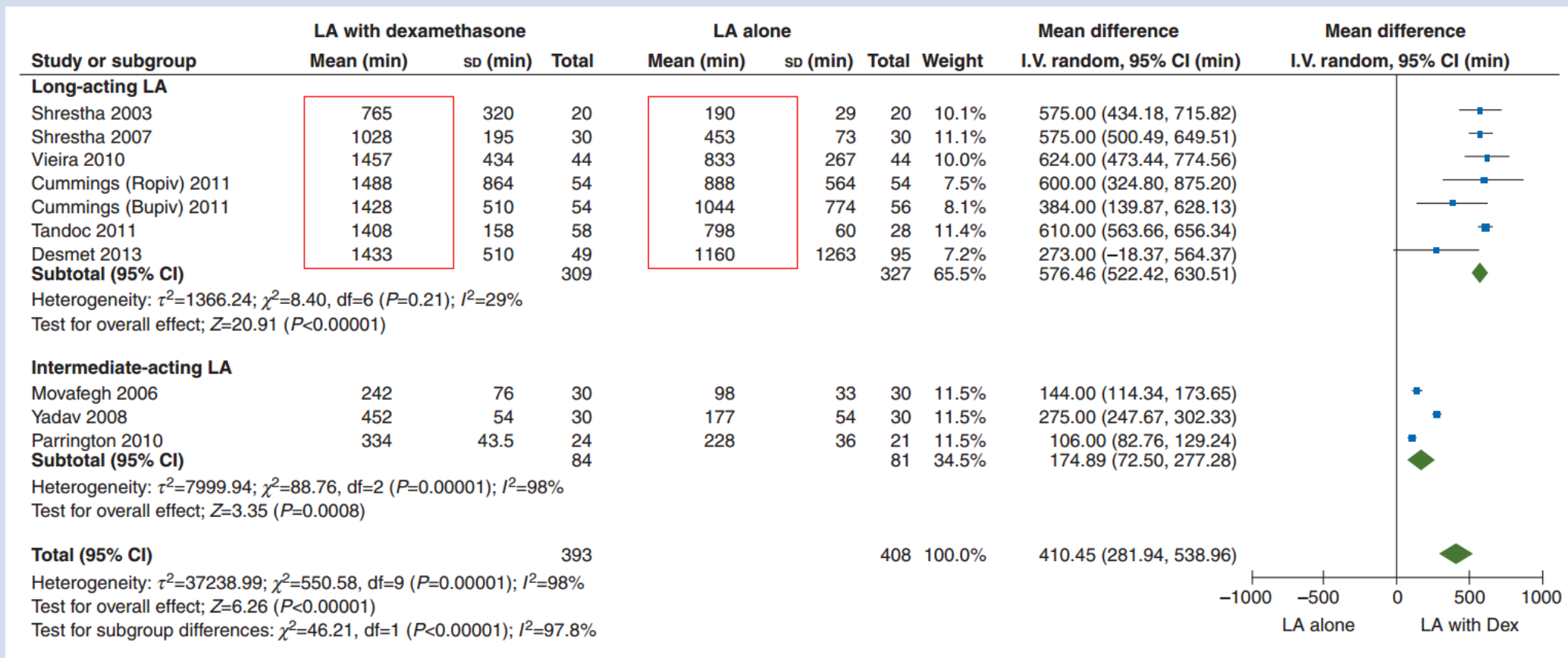


Fig 3 Forest plot demonstrating duration of analgesia/sensory block. Sample size, mean, SD, and the pooled estimate of the mean difference are shown according to subgroup. 95% CIs are indicated as lines for each study and diamonds for pooled estimates. Dex, dexamethasone; LA, local anaesthetic; SD, standard deviation.



Dexametason – perineuralt?

Muskelfunktion

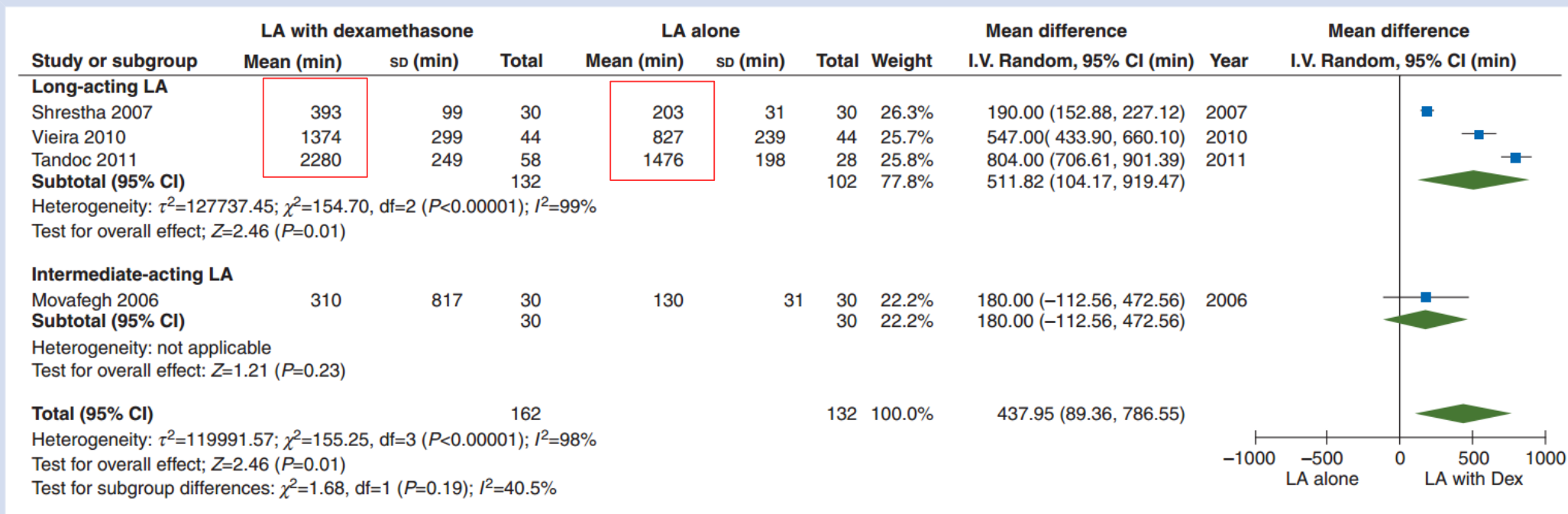


Fig 4 Forest plot demonstrating duration of motor block. Sample size, mean, SD, and the pooled estimate of the mean difference are shown according to subgroup. 95% CIs are indicated as lines for each study and diamonds for pooled estimates. Dex, dexamethasone; LA, local anaesthetic; SD, standard deviation.

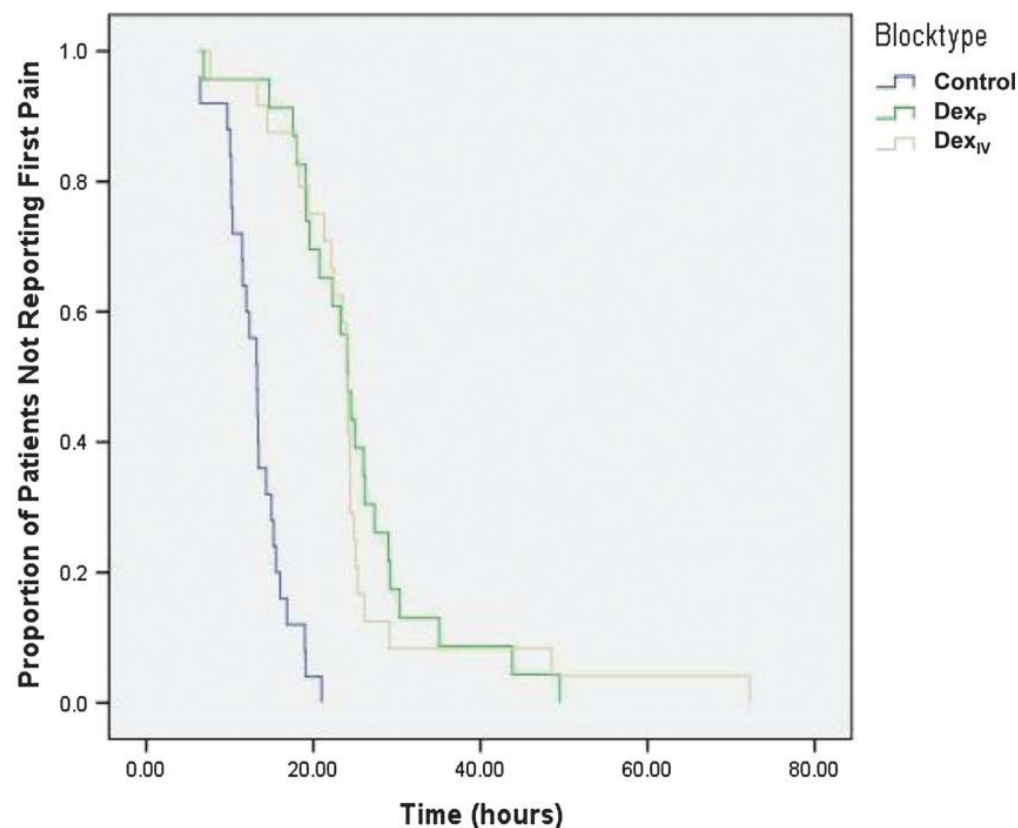


Dexametason – **perineuralt?**

Intravenous Dexamethasone and Perineural Dexamethasone
Similarly Prolong the Duration of Analgesia After
Supraclavicular Brachial Plexus Block
A Randomized, Triple-Arm, Double-Blind, Placebo-Controlled Trial

25+25+25 pat
Hand-/underarms-kirurgi
Supraclavikulär blockad
30 ml bupivakain 0,5%

8 mg Dexametason
iv / perineuralt / kontrollgrupp



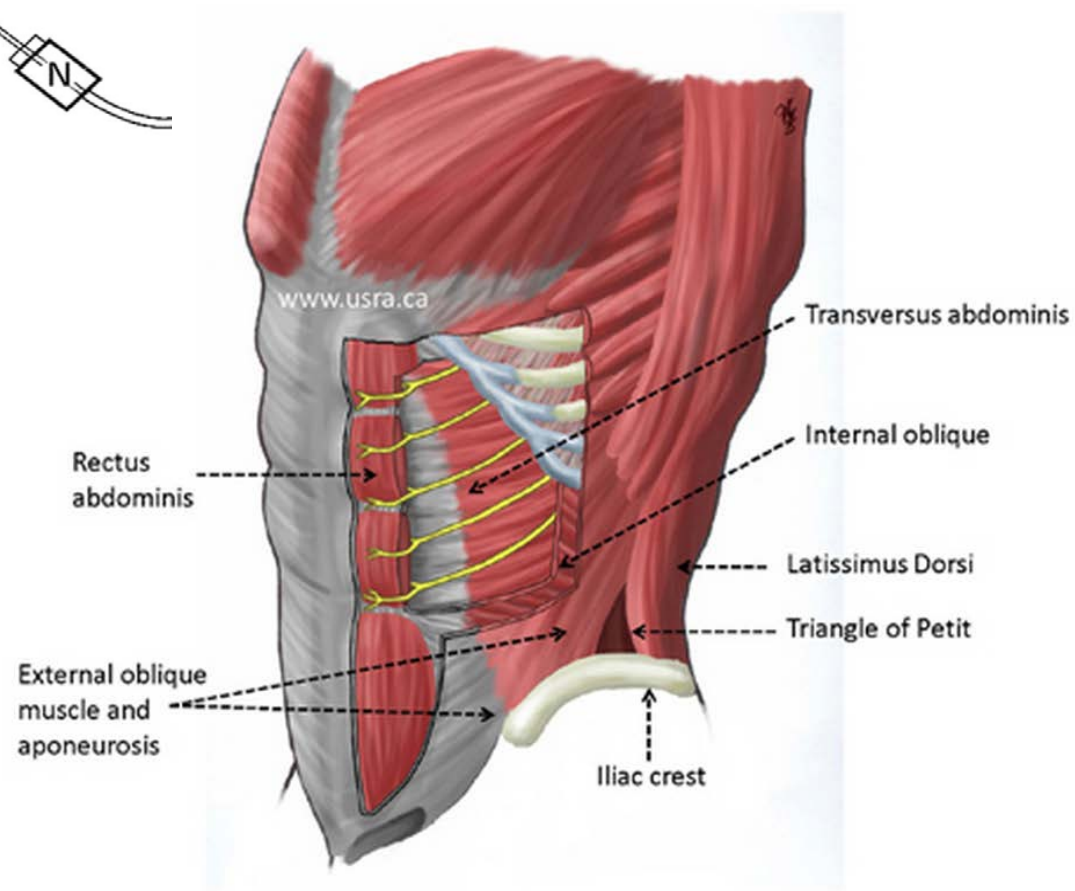
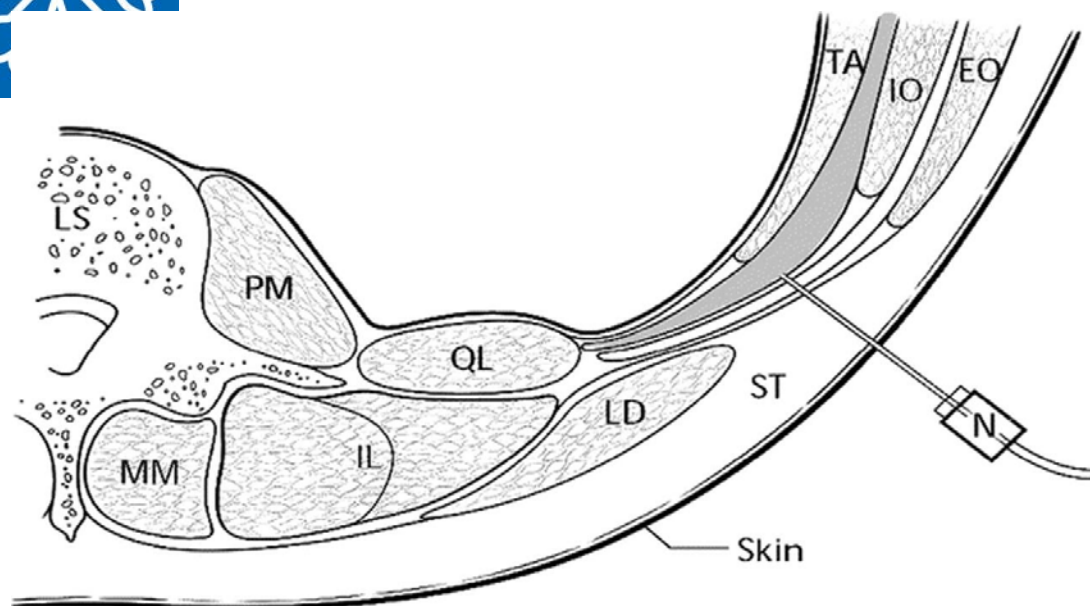


Dexametason som adjuvans?

- Intravenöst eller perineuralt?
- Lokal toxicitet? – för få studier!
- Betapred?
- 'PONV-profylax?'



TAP-blockad





TAP-blockad



Anaesthesia

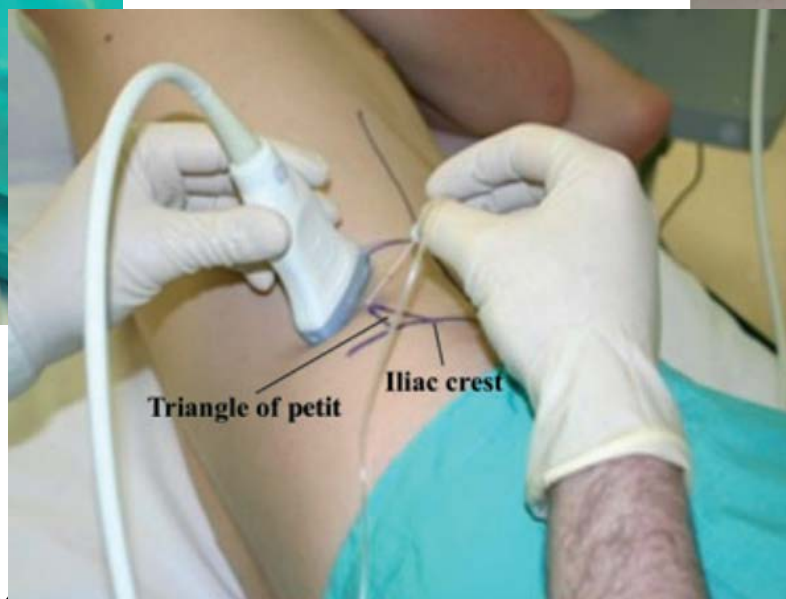
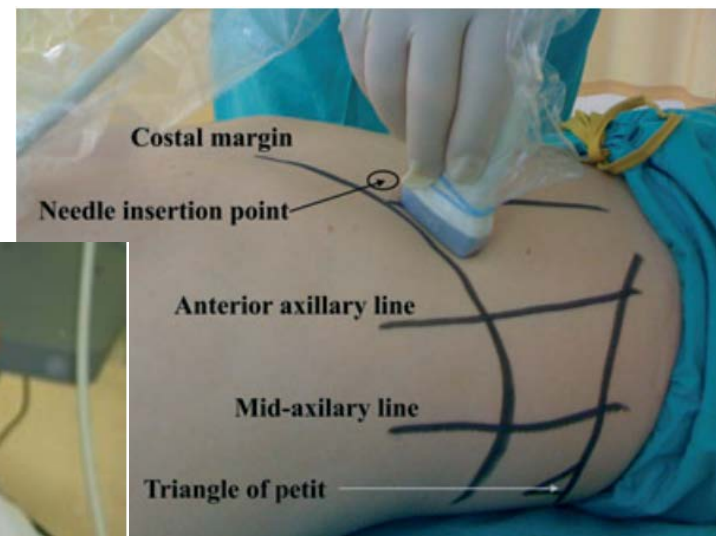
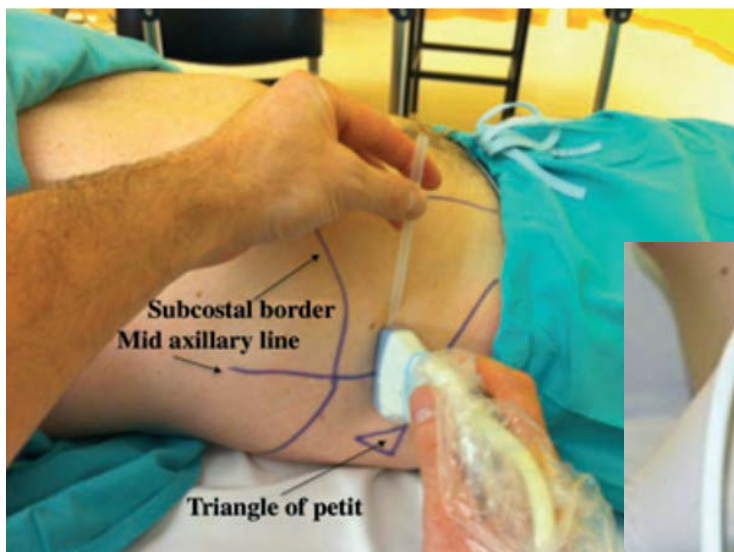
Journal of the Association of Anaesthetists of Great Britain and Ireland

Anaesthesia, 2011, 66, pages 1023–1030

doi:10.1111/j.1365-2044.2011.06855.x

ORIGINAL ARTICLE

Studies on the spread of local anaesthetic solution in transversus abdominis plane blocks*





TAP-blockad

Subcostalt



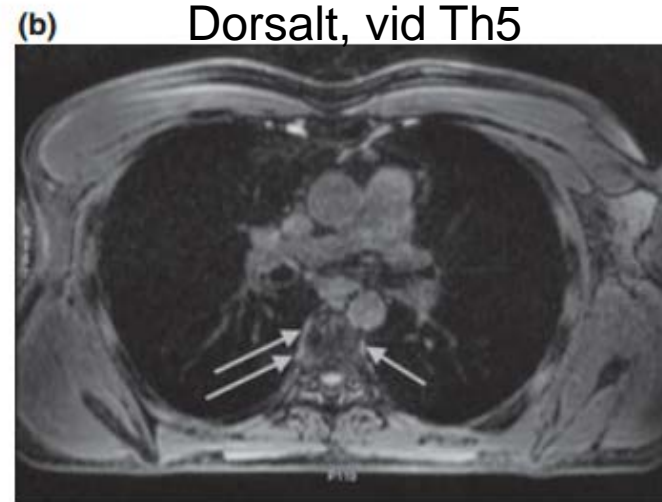
Dorsalt



Midaxillärt



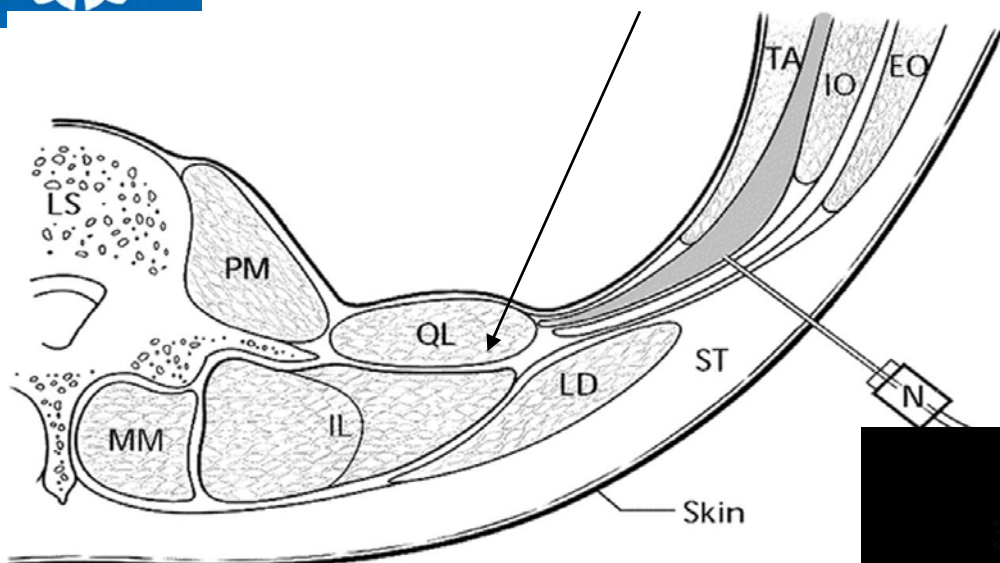
Dorsalt, vid Th5



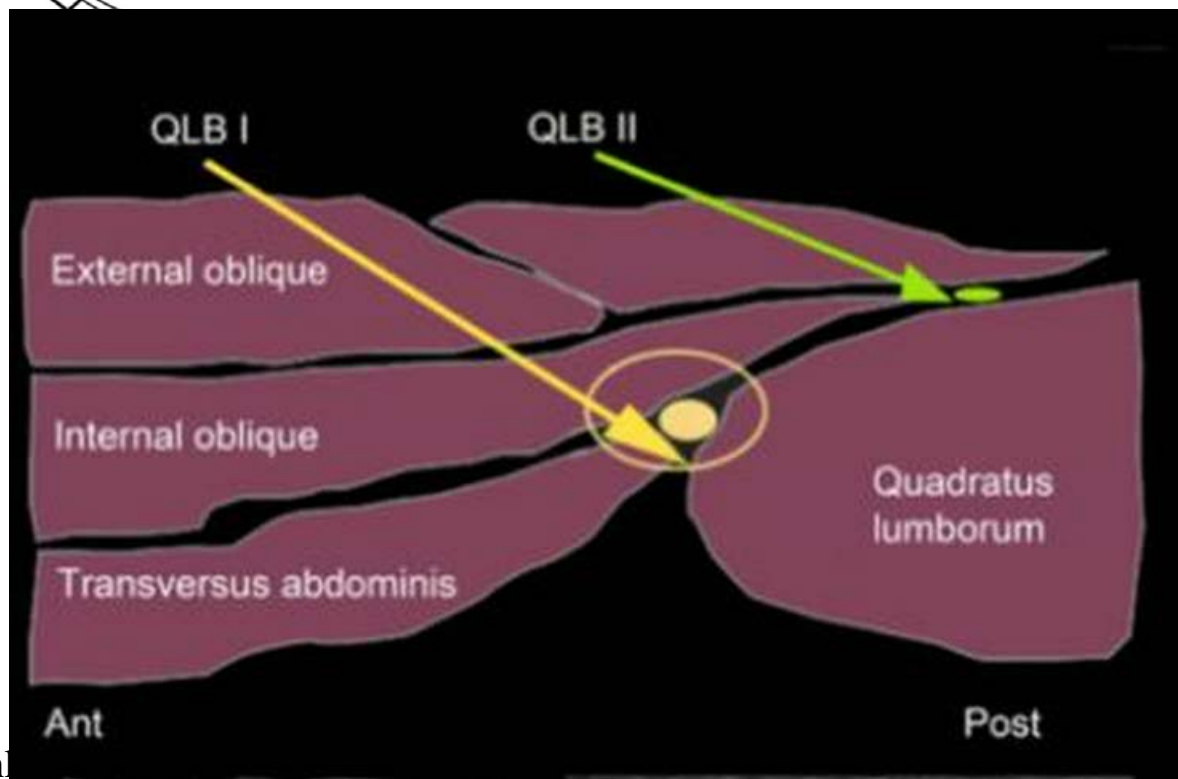


TAP-blockad

Quadratus lumborum-blockad



Enligt Rafa Blanco:

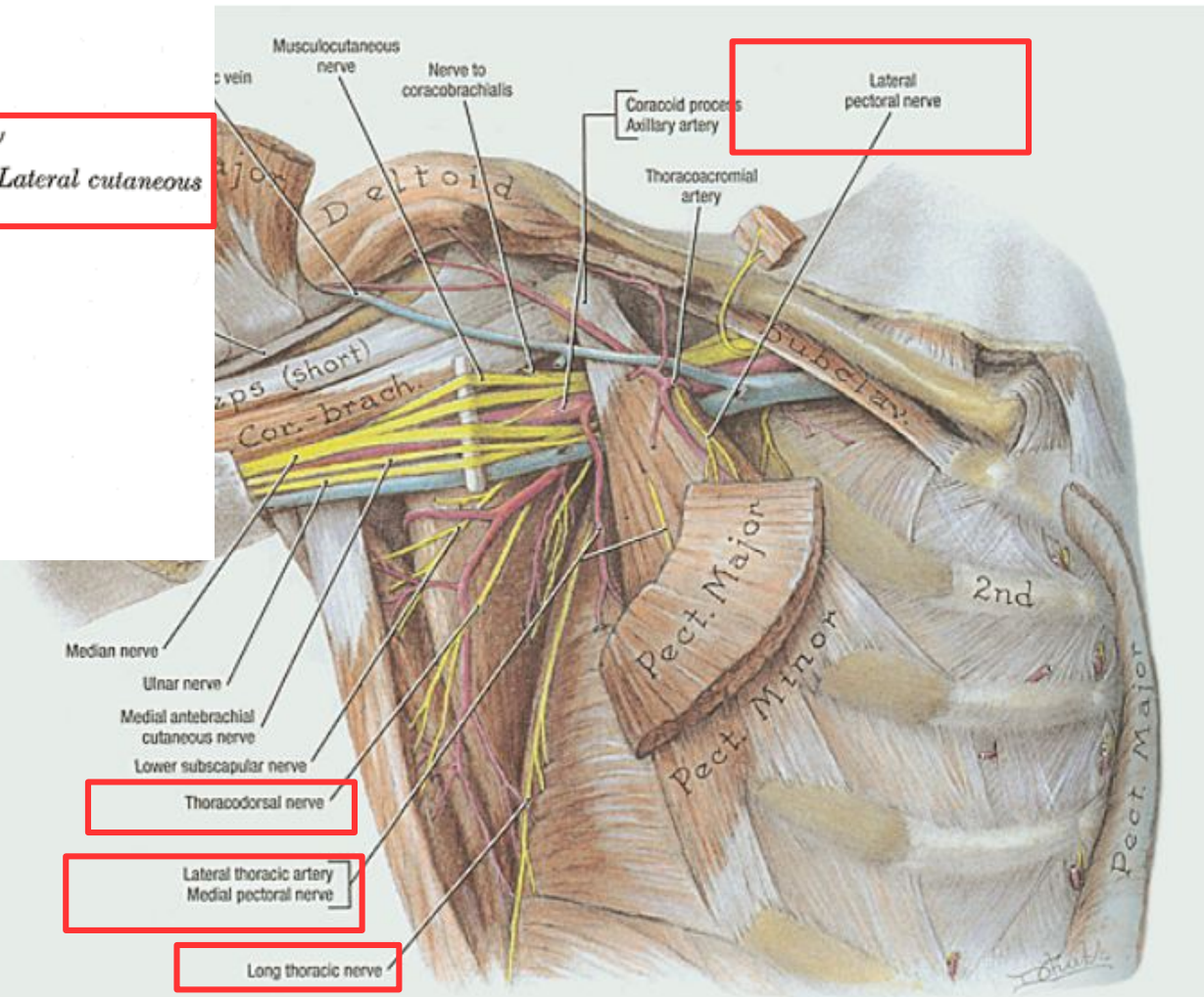
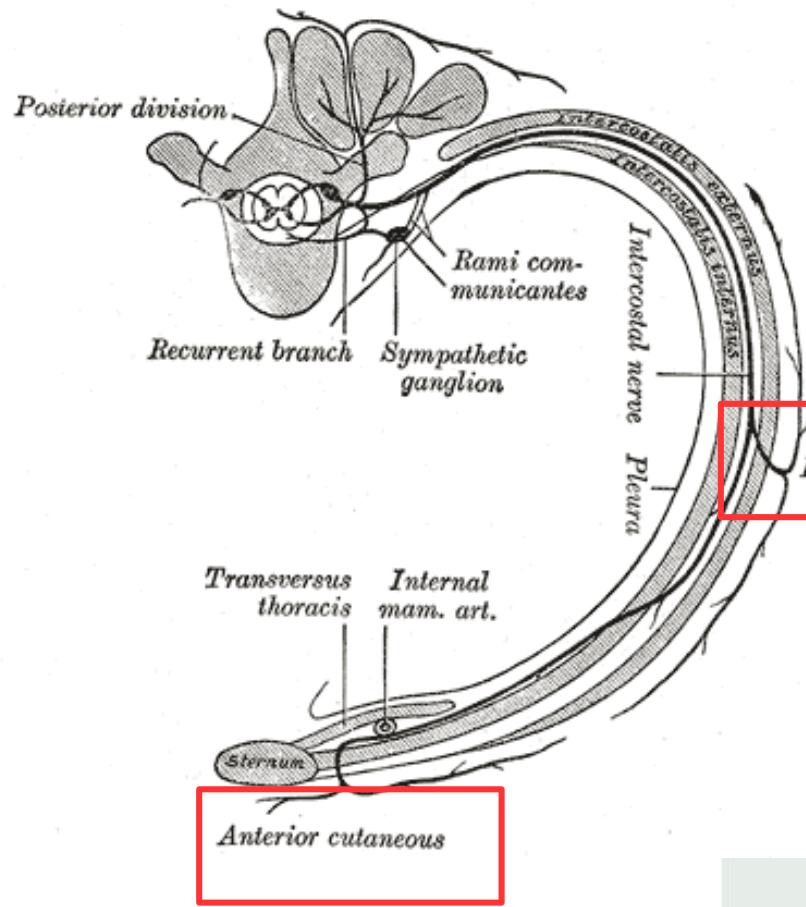




Fascieblockader i thorax

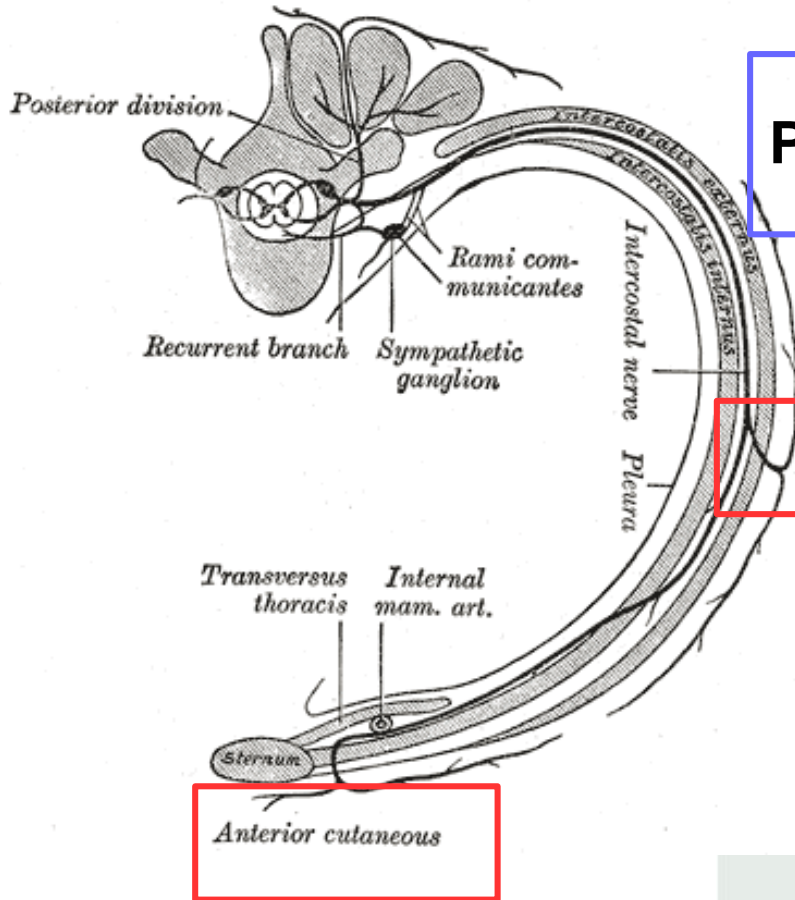


Fascieblockader i thorax





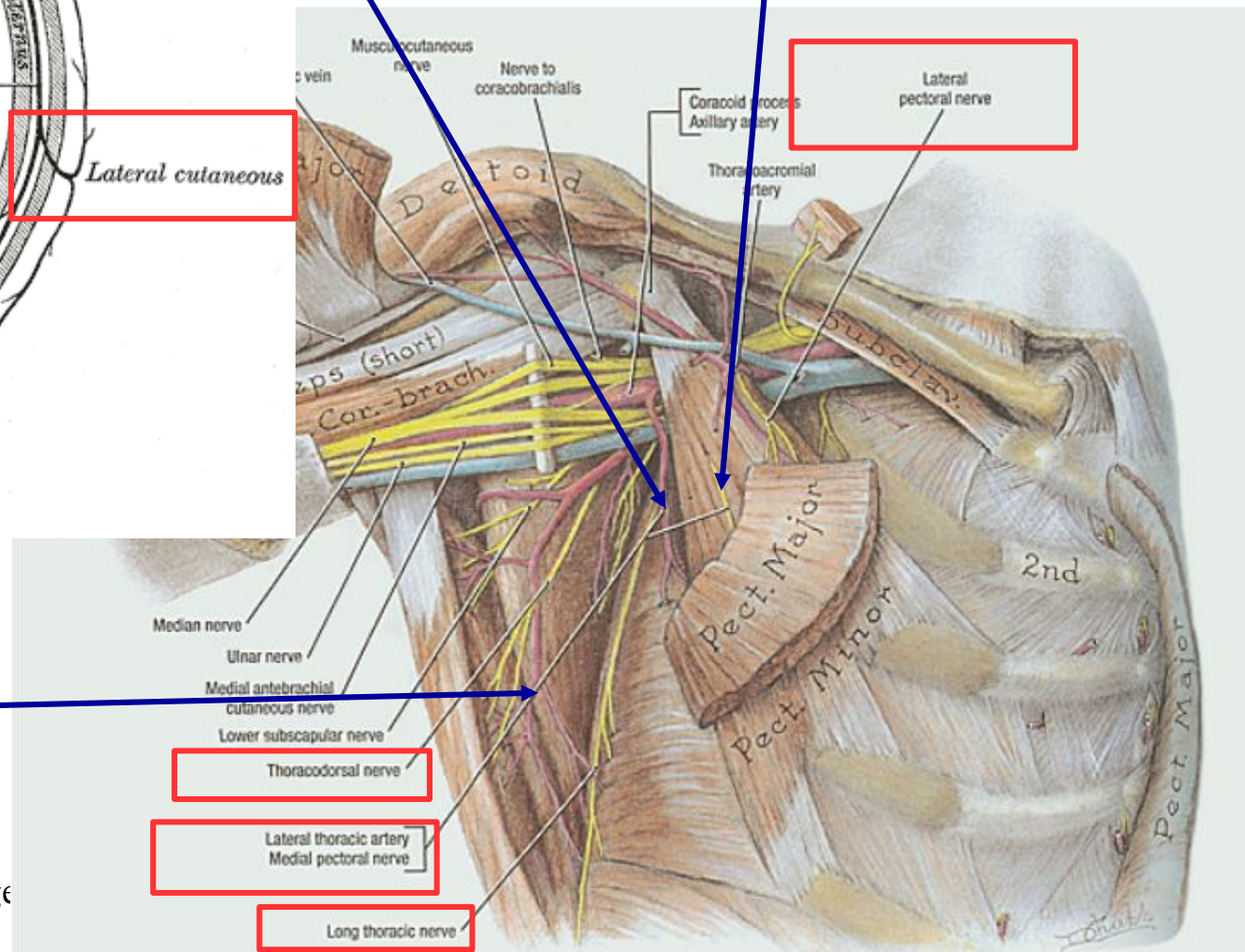
Fascieblockader i thorax



PECS 2-blockad

PECS 1-blockad

Serratus plane-blockad





Anaesthesia 2013

Fascieblockader i thorax

doi:10.1111/anae.12344

Original Article

Serratus plane block: a novel ultrasound-guided thoracic wall nerve block

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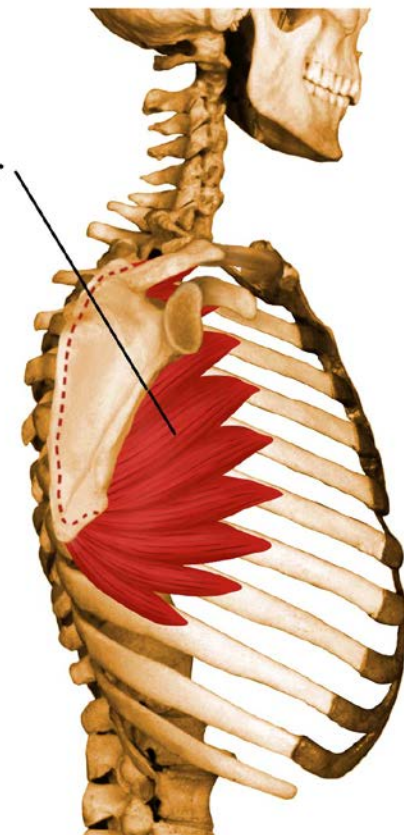
2 Clinical Fellow, Anaesthetic Department, University Hospital of Liverpool

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4 Professor of Human Anatomy and Embryology, Faculty of Medicine, University of Valencia

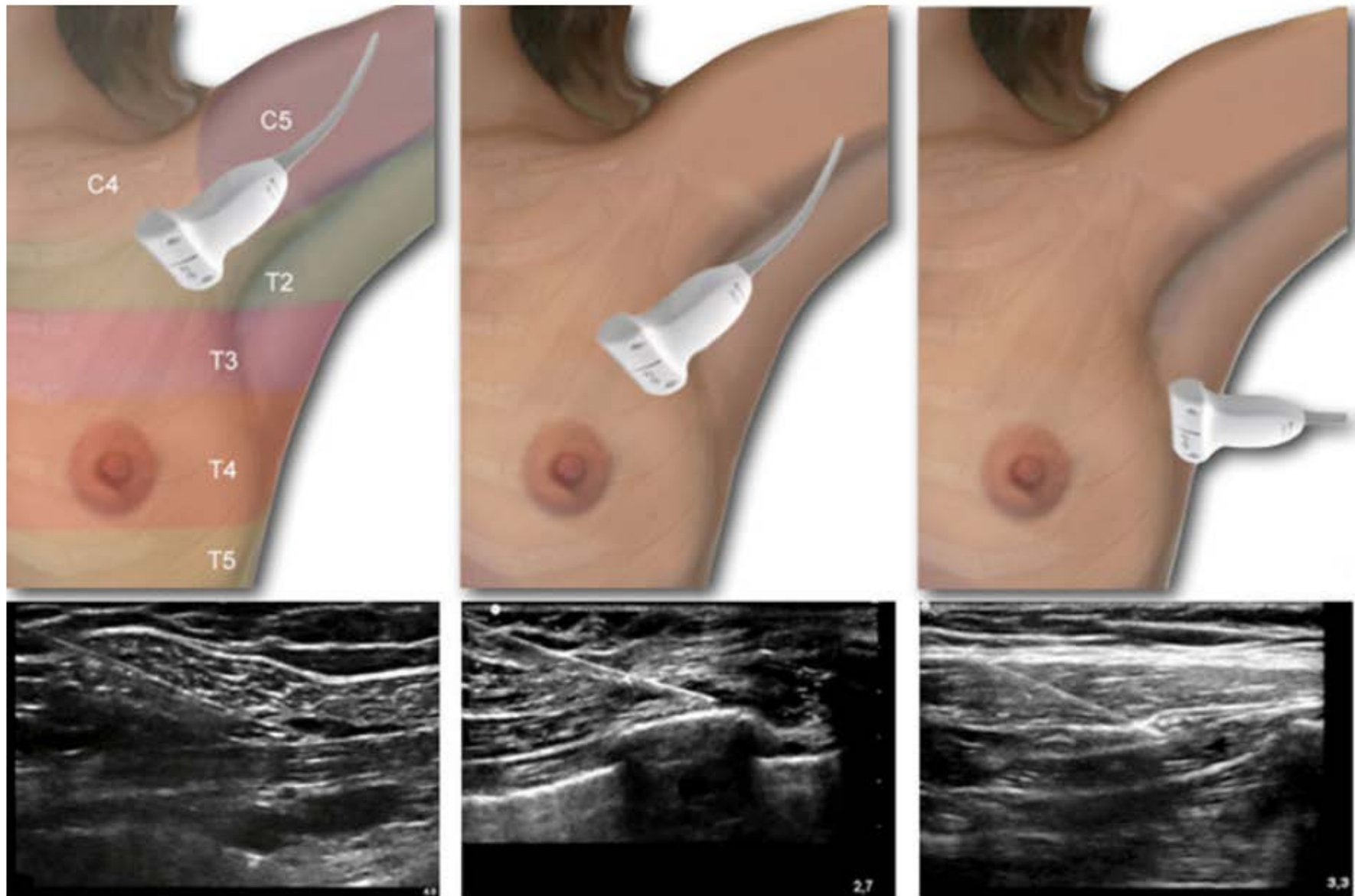


Serratus anterior





Fascieblockader i thorax



Hot Tc Figure 2 Graphic representing probe position and ultrasound image obtained during a Pecs I block (left), Pecs II block (middle) or a serratus plane block (right).



Fascieblockader i thorax

- Enkla
- Få studier
- Låg risk?



TACK!