The Block Show with Dr. Teames

Tips and Tricks for Thoracic and Chest Wall Blocks

PEC's 1 and 2 – for breast surgery/ sternal fractures, also rescue for open biceps tenodesis procedures

Probe Positioning Tips:

- Best view is if your probe is in the mid clavicular line, right at the nipple or slightly lateral to the nipple line
- Best view is when the probe is tilted slightly medially. Most regionalist will naturally do this because the view of the rib is so much better
- At the mid clavicular/nipple line usually you will only see PEC major and PEC minor and NOT the serratus anterior muscles. That's Okay. This is where I usually do this block

Local Infiltration Location: For PECs 1 place local in between the PEC major and PEC minor muscles. For PEC 2 place local underneath PEC minor muscle and on top of the rib (if more lateral i.e. in the anterior axillary line, you may see the serratus anterior muscle can place local between serratus anterior and PEC minor muscles)

Standard Volume:

- 10 ml between pectoralis minor and major (PEC1), 20 ml under pectoralis major (PEC2)
- 30 ml unilateral, 60 ml bilateral
- 0.5% Ropivacaine unilateral, 0.25% bilateral +/- Decadron 4mg
- Liposomal Bupivacaine: for unilateral block, mix 20 mL of LB with either 10 mL 0.25% or 0.5% Bupivacaine for total volume of 30 mL. For bilateral PECs block, mix 20 mL of LB with 40 mL of 0.25% Bupivacaine for total volume of 60 mL. Use 30 mL per side

Watch out for:

- This is not a surgical block, only an analgesia block
- If the probe is tilted medially, do NOT put your needle right in the middle of the probe. Place your needle just medial to the probe and you'll see your needle right away once it enters the skin
- For open biceps tenodesis procedures you can place a PEC 2 block to cover the intercostal brachial nerve pain associated with this procedure
- It is not necessary to do two separate needle sticks, i.e. one for PEC 1 and the other for PEC 2. Do your PEC 2 block first, then while backing out do your PEC 1 block

Serratus Anterior – Unilateral or bilateral rib fxrs from ribs 3-10 or chest tubes

Probe Positioning Tips:

- It is ideal to have the posterior edge of the probe over the posterior axillary line in order to see the latissimus dorsi muscle underneath
- I like to oblique my probe a little in order to bisect the ribs and make them look better on ultrasound
- Best landmark is to go lateral to the nipples and have the middle of the probe in the mid axillary line

Local Infiltration Location: There are two types of serratus blocks: a sub-serratus and supra-serratus. Sub-serratus is placing local underneath the serratus anterior muscle and on top of the rib = better, denser analgesia that works quicker but doesn't last as long. For supra-serratus place local on top of serratus anterior muscle but between the latissimus dorsi muscles = longer lasting block but isn't as dense and has longer onset.

Standard Volume:

- This is a volume block that is best done unilaterally only. Need 40-60 mL of local anesthetic
- Can use 0.25% Bupivacaine or 0.25%-0.3% Ropivacaine
- Can place a catheter and run dilute local anesthetic at up to 14 mL/hr
- Liposomal Bupivacaine (LB): unilateral block, use 20 ml of LB with 20-40 mL of 0.25% for a total of 40 to 60 mL of volume

The Block Show with Dr. Teames

Tips and Tricks for Thoracic and Chest Wall Blocks

Watch out for:

- This is not a surgical block, only an analgesia block
- Be mindful of the thoracodorsal artery when placing a supra-serratus block. It can get in the way
- Most rib fxrs are anterolateral (60% of the time) so serratus anterior is a great block to help with this but is difficult to control pain if there are bilateral rib fractures using this technique because you need to use a lot of volume. For bilateral rib fxrs may need to use thoracic ESP
- If there is a lot of subcutaneous air due to sever rib fractures, serratus anterior blocks can be very challenging to do
- You can always combine the fast onset of the sub-serratus with the longer lasting effects of the supra-serratus blocks by splitting your local. Ex: 30 mL for sub-serratus and 20- 30 mL for supra-serratus

Thoracic ESP – Posterior rib fxrs, thoracic spine surgery, anterior chest wall surgeries, VATs, thoracotomies

Probe Positioning Tips:

- Several scanning techniques here: scan from spinous process lateral to see transverse process (TP) (classic technique), or scan from ribs laterally scanning medial until you see the transition point of the TP. Either one works
- Key point it be sure you are over TP and NOT the rib!!! Rib gets you very little in the way of analgesia
- Patient can be sitting or lateral position when doing this block. Likewise, needle can come from cephalad to caudad or caudad to cephalad

Local Infiltration Location: It is critical that the local anesthetic be placed on the TP and underneath the fascia covering the muscle (directly on top of the TP) and not in between the muscle and fascia. 30 mL of local will generally get you about 5 to 6 dermatomes of spread unilaterally.

Standard Volume:

- Unilateral block: 20- 30 mL of Ropivacaine 0.5% or 0.5% Bupivacaine +/- Decadron 4mg preservative free
- Bilateral block: 20- 30 mL of Ropivacaine 0.25% or 0.25% Bupivacaine per side +/- Decadron 4mg preservative free for total of 40 to 60 mL of local
- Liposomal Bupivacaine: for unilateral block, mix 20 mL of LB with either 10 mL 0.25% or 0.5% Bupivacaine for total volume of 30 mL. For bilateral ESP block, mix 20 mL of LB with 40 mL of 0.25% Bupivacaine for total volume of 60 mL. Use 30 mL per side

Watch out for:

- This is not a surgical block, only an analgesia block
- Critical to be sure you are over TP and not rib. Can be helpful to use a marking pen to mark the TP so you don't accidently slide too lateral
- Try to place needle close to the probe as possible. This will help in seeing the needle right away and avoid having to scan around searching for your needle but missing your target
- I try to place my needle tip on the superior/proximal side of the TP and not in the middle of it. This helps get underneath the fascia covering the TP in the proper plane