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## "Failed blocks"

Maybe you should never Re-Block

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Has this happened to you;

You have a patient for a total knee replacement procedure, prior to surgery, with the patient awake, you perform a femoral nerve block using Bupivacaine 0.5% (or 0.25% or 0.375%) with epinephrine (or even without) and a nerve stimulator (or ultrasound), whatever the method you injected only after being satisfied with your needle positioning. The patient was then taken to the O.R. and the procedure was performed. The patient goes to post-anesthesia recovery room, now 1 1/2 hours after the block, and wakes up complaining of 7 out of 10 pain in the operated limb. The Surgeon's on the phone, he doesn't seem happy, *"That last patient we did, Mr. Jenkins in recovery room is in a lot of pain. Can you block him again?"*

Now what? Block them again? PCA? After all it's been over 1.5 hours, the block would have been complete after the first 40 or 50 minutes, right? Besides the whole thing doesn't make sense, the block should've worked.

On the other hand, when you're dealing with these patients who have had chronic pain, the standard wisdom goes that the psychological aspect of the pain can many times create the patient perception of pain which will not go away with a nerve block. Whatever, all you know is that the the surgeon, and now nurse in recovery, are bugging you for some resolution to this problem.

In the past, when this has happened, you or one of your colleagues would do another block in the recovery room and many times this second block would seem to set up quickly provide good pain relief. On the other hand a PCA requires nothing more than an order and they have seemed to work fairly well in the past in most cases like this.

So what's the deal really?

Pain is a very complex issue, especially in the chronic ... yada, yada, yada. Yeah right, some things we are not meant to know, grasshopper?

***How about this? There are very few actual "Failed Blocks".***

### What?

**Consider these situations first.**

"what to do?" becomes a matter of sorting out the likely cause.

**Tourniquet pain;** will usually go away by itself in about an hour after the tourniquet's released.

**Pain from intraoperative positioning** (usually back pain); could take a long time to go away depending on the patient's physical condition and may need some medication to help out.

**"Other Painful Sites";** you relieve the pain in the operative knee, and now the hip moves up to first place. Other analgesics are probably necessary.

**Incomplete Coverage by the Block;** Rare. Pain is occurring in area not covered by the nerves you targeted. Maybe the incision went beyond the normal bounds, or a graft was taken from an area not blocked. An example might be the obturator nerve distribution which would be addressed separately from the femoral and sciatic. You could consider a different block to cover the area of concern if you can identify it. Otherwise, analgesics.

**Late or slow onset of block;** More common than you think. Most of the time caused by use of bupivacaine only for block. If the nerve block appears to be partially effective in recovery room, most of the time, the block will continue to intensify over the next hour or two. You can be reasonably sure that the block will intensify IF you see some signs of a partial block. Tincture of Time. Do nothing, wait, reassure patient (and surgeon and nurse) that things will get better.

## Avoiding Late or Slow Onset Blocks

Mix a faster/shorter agent with the longer acting bupivacaine to obtain a "bridge block". Mixing mepivacaine 2% with bupivacaine 0.5% (with or without epinephrine) results in a solution that has a reasonably fast onset (10-20 minutes in legs) and a long duration (12-16 hours without epinephrine in legs).

The solution can be made by mixing 30 ml of mepivacaine with 30 ml of bupivacaine, yielding 60 ml of mepivacaine 1% and bupivacaine 0.25%, then injecting 30 ml of the solution for the femoral nerve block and the other 30 ml for the sciatic block. In our institution, purely because of the way the mepivacaine is packaged we use 20ml of 2% mepivacaine with 30ml of 0.5% bupivacaine, creating 50 ml of mepivacaine 0.8% and bupivacaine 0.3%, then injecting 25 ml with the femoral block and 25 ml in the sciatic block.

For total knees, epinephrine is avoided in our institution to make sure that the majority of the block is worn off by the time the patient is ambulated the next morning.

## A Good Mix

The mepivacaine/bupivacaine solutions described above (Mepivacaine 0.8 - 1% + Bupivacaine 0.25 - 0.3%) represents a good local anesthetic solution to use for almost any block which is to be used for post-operative pain relief. The only adjustment necessary to the mix is deciding whether to add epinephrine. At our house, if the patient is not expected to use the target limb for at least 24 hours after the operation (shoulder replacements, most anterior cruciate repairs) we add epinephrine. Adding epinephrine just means using bupivacaine with epinephrine 1:200,000 in the mix instead of the plain solution. The resultant solution contains either 1:400,000 or 1:333,333 epinephrine concentration which is ideal for the prolongation of the block.

Popliteal tibial blocks, interscalene and axillary brachial plexus blocks performed with this mepivacaine/bupivacaine solution usually have an onset of 8-15 minutes while femoral blocks and sciatic block have an onset time of 10-20 minutes.