**8AP7-4**

Upper limb tissue oxygenation increases after brachial plexus block

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**Background and Goal of the Study:** Brachial plexus block (BPB) induces hyperemia in the ipsilateral upper limb resulting in increased skin temperatures. However, there are no data available of changes in deep tissue oxygenation (STO2) after BPB. Near infrared spectroscopy (NIRS) technology now allows for measurements of muscle oxygenation at the thenar of the hand. Changes in STO2 after BPB are not investigated yet, and possibly serve as a marker of successful BPB.

**Material and methods:** Seventeen patients were enrolled. Ultra-sound guided BPB was performed at the interscalene level (n=14) or at the supracleavicular level (n=3). STO2 was measured using NIRS-technology (Inspectra Spotcheck®, Hutchinson Technology) at the thenar of the hands. Baseline STO2 (BS) was recorded before performing BPB and repeated after 5 and 20 minutes. ANOVA was used to compare STO2 at the different time points.

**Results and Discussion:** The BPB’s were successful in all of the patients. Baseline STO2 was 80.6% and 79.9% in the blocked BPB-arm and contra-lateral arm respectively. STO2 in the blocked BPB-arm rose to 85.6% (p<0.05 compared to BS) and 86.1% (p<0.01 compared to BS) after 5 and 20 minutes respectively. There were no significant differences between STO2 at 5 and 20 minutes in the BPB-arm. In the contra-lateral arm STO2 was 82.6% (p=NS compared to BS) and 77.9% (p=NS compared to BS) after 5 and 20 minutes respectively.

In the blocked arm STO2 rose significantly 5 (p<0.05) and 20 minutes (p<0.01) after BPB compared to BS. There were no significant differences between STO2 at 5 and 20 minutes. Nor were there any significant changes in STO2 in the contra-lateral arm.

**Conclusion:** Tissue oxygenation measurements at the thenar of the ipsilateral hand can be an early indicator (within 5 minutes) of successful BPB. BPB not only increases skin bloodflow but also bloodflow to deeper (muscle) tissue and therefore can be indicated in critical upper limb ischemia.

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**8AP7-5**

Neuropathy following axillary brachial plexus block

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**Background:** Neuropathic pain following nerve block is rare but a very troubling symptom that disturbs the quality of life and resist to treatments

**Case report:** We report a case of a 62-year old woman referred to our pain clinic for the upper extremity pain, which was developed following carpal tunnel operation under axillary brachial plexus block. Her medical history show that she had right median neuropathy by neve conduction test, but she had not any abnormal laboratory tests. An axillary brachial plexus block under ultrasonographic guidance was planned for the carpal tunnel operation. 40 ml of lidocaine 1.5% mixed with 0.4 mg of epinephrine was slowly injected into radial, median, ulnar nerve area and musculocutaneous nerve. The tourniquet applied time was 90 minutes. No specific events occurred during the operation. She started complaining of the dysesthesia and hypothesis in ulnar area from the postoperative 10th day. The pain was aching with intermittent pinning sensation. The VAS was 6-8/10. The pinning sensation developed 3 or 4 times a day with 2-3 seconds in duration. Physical examination showed sensory defect in that area with cold sensation 1/10, touch 1/10 and pinprick 0/10 respectively. We started stellate ganglion block 3 times a week with pharmacological treatment(pregabalin, tramadol, milnacipran). The nerve conduction study performed 4 weeks following the operation showed medial antebracliacial cutaneous nerve injury in painful arm. Currently she is complaining the continuous pain and allodynia with the intensity of 4-6/10 in VAS.

**Discussion:** There is a lot of controversy relating the cause of neuropathy following nerve block. The ischemic effect on the nerve by tourniquet appears to be a contributing factor on the neuropathy. Because a large dose of lidocaine was injected in this case, the toxicity of lidocaine cannot be ruled out.


**Learning points:** We are not sure that the neuropathy was caused by the tourniquet effect or the local anesthetic induced tissue toxicity, but there is the possibility of neuropathy when a large dose of lidocaine is injected to nervous tissue.

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**8AP7-6**

A comparison of posterior and medial cord stimulation in neurostimulation-guided vertical infracavicular block: a randomized non-inferiority clinical trial

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**Background and Goal of Study:** The type of distal motor response elicited with cord stimulation influences the overall success rate of infracavicular block (ICB) using neurostimulation. We hypothesized that the medial cord stimulation might be as effective as the posterior cord stimulation in terms of block success during neurostimulation-guided ICB. The primary endpoint was success rate of complete sensory block. The secondary endpoints included onset time, efficacy of sensory and motor blocks, and adverse events.

**Materials and Methods:** Ninety-six patients scheduled for elbow, forearm and hand surgery were randomly received a single injection ICB after stimulation of the posterior (group P) or medial cord (group M).

The vertical ICB was performed half way between the jugular notch and the ventral process of the acromion using a nerve stimulator. At a stimulating current <0.5 mA, flexion of fingers and/or wrist was considered as the medial cord stimulation and extension of fingers and/or wrist as the posterior cord stimulation. All blocks were performed with 40 ml of ropivacaine 0.5%.

Sensory and motor block were assessed in the distribution of radial, median, ulnar, musculocutaneous, and medial antebracliacial cutaneous nerve by a cold test and movement, respectively every 5 min until 50 min. A successful block was defined as complete sensory block of all five nerves below the elbow within 50 min after injection. The surgical procedures, duration of surgery, tourniquet time, and tourniquet pain and adverse events were noted. Analysis of the primary endpoint was performed according to a non-inferiority approach. P value < 0.05 was considered statistically significant.

**Results and Discussion:** The successful block rate of Group M was similar to that of Group P during ICB (95.7% vs 91.7%, 95% CI of difference -0.07 to 0.16, P = 0.359). The number of patients with block sufficient for surgery and supplementation were comparable between the groups. Onset time (median difference -1 min, 95% CI -3 to 1, P = 0.239), efficacies of the sensory and motor block, and adverse events were comparable in both groups.

**Conclusion(s):** This study demonstrated that the medial cord stimulation is non-inferior to the posterior cord stimulation in terms of block success rate in neurostimulation-guided ICB.


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**8AP7-7**

Predictors of hospital admission after rotator cuff repair: the role of peripheral nerve blockade

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**Background and Goal of Study:** Addition of a peripheral nerve block for ambulatory rotator cuff repair surgery is reportedly associated with improved pain control, higher patient satisfaction and earlier discharge [1]. However, little conclusive evidence is available on the impact of regional anesthesia on the incidence of hospital admission after this procedure.

**Materials and Methods:** Data collected by Premier Inc. from approximately 400 hospitals between 2006 and 2010 was accessed. Patients for elective surgical rotator cuff repair were identified and included in our analysis. Subsequently, they were stratified by the type of anesthesia they received. Patients who were discharged to home, those admitted to the hospital were on average older (65.7 years vs. 57.3 years, p<0.0001), had a higher average comorbidity burden (Deyo Index 1.06 vs 0.70, p < 0.0001), were more frequently female (58.5% vs. 42.0%, p < 0.0001), and had a lower rate of addition of a peripheral nerve block to general anesthesia (12.9% vs 15.7%, p=0.0003). However, age, comorbidity index and prevalence of individual comorbidities were similar between patient receiving G or