166. The analgesic efficiency of continuous femoral nerve blockade after total hip arthroplasty (THA) is not improved by the use of a stimulating catheter

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Introduction: During continuous femoral nerve blockade in volunteers, the use of a stimulating catheter improves the success rate of the technique.[1] The aim of the present prospective, randomised study was to confirm such results in a clinical setting, i.e. after THA.

Material and methods: Sixty patients scheduled for THA under general anesthesia were randomly divided into 4 groups of 15. In all patients, a femoral catheter (Stimucath, Arrow, USA) was inserted either blindly in Groups 1 and 2, or while maintaining a femoral twitch in Groups 3 and 4. An initial bolus dose of 0.4 mL/kg of 0.5% ropivacaine with epinephrine 1/200000 was injected through the catheter in all patients. At the end of surgery, a continuous infusion of 0.2% ropivacaine was started and maintained during the first 48 hours at a basal rate of 6 mL/h with PCA boluses of 6 mL/30 min. in G1 and G3, or 3 mL/h and PCA boluses of 3 mL/30 min. in G2 and G4. In all patients, 1 g paracetamol was administered IV every 6 hours. In case of pain, piritramid was injected IM following a standardized protocol. Femoral sensory and motor block, pain scores at rest and on movement (VAS: 0 = no pain; 100 = severe pain), local anesthetic consumption, and patient's satisfaction score were recorded at 1, 24, and 48 hours. Results are expressed as mean ± SD. A p value$<$0.05 was considered significant.

Results: No difference in demographic data was found between the groups. Sensory femoral nerve block was better maintained in G3 and G4 than in G1 and G2. However, as shown in the Table, no difference in pain scores at rest and on movement was found between the groups at any time. Total ropivacaine consumption was significantly higher in G1 and G3 when compared with G2 and G4 (383 ± 41 vs.214 ± 59 vs. 370 ± 58 vs. 189 ± 42 mL respectively in G1, G2, G3, and G4). No difference was observed between G1 and G3, and G2 and G4. Postoperative piritramid consumption and patient's satisfaction were comparable in the four groups.

Conclusion: After THA, continuous femoral nerve block is better maintained when a stimulating catheter is used. However, this is not associated with a better quality of pain relief. Whatever the catheter used, a low basal infusion rate of local anesthetic associated with small PCA boluses (e.g. 3 mL/h and bolus of 3 mL/ 30 min.) is as efficient as higher ones.

EVA (0-100mm)	G1	G2	G3	G4
H1				
EVAr	43 ± 17	46 ± 17	43 ± 20	33 ± 24
EVAm	53 ± 21	56 ± 17	50 ± 23	48 ± 30
H24				
EVAr	25 ± 14	18 ± 20	29 ± 25	14 ± 13
EVAm	41 ± 14	39 ± 29	46 ± 30	34 ± 18
H48				
EVAr	16 ± 12	13 ± 17	19 ± 18	15 ± 12
EVAm	29 ± 17	29 ± 24	29 ± 21	30 ± 14

Reference

1. Salinas F, Neal J, Sueda L et al. Reg Anesth Pain Med 29: 212-220, 2004.

186. Doppler ultrasound guided vertical infraclavicular brachial plexus block

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Introduction: The vertical infraclavicular block (1) has gained wide acceptance in the Netherlands. The entrance point of the needle is halfway between the jugular notch and the ventral part of the acromion. The latter is not always easy to identify. At the infraclavicular level the nerves of the brachial plexus are in close proximity to the subclavian artery.

Therefore we used the doppler ultrasound signal of the subclavian artery to mark the needle entrance point and compared it with the Kilka insertion point.

Methods: 30 patients scheduled for surgery of the upper extremity under infraclavicular brachial plexus block were investigated. The point where the doppler ultrasound signal (Dopplex, Huntleigh) of the subclavian artery reached its audible maximum was marked (DP) as well as the Kilka point (KP). A 5 cm stimuplex D needle (B.Braun, Melsungen) was inserted at the doppler point in a strictly vertical position. Lidocaine 1,5% with adrenaline 1:200.000 7 mg/kg was injected intermittently and under frequent aspiration, after eliciting a motor response of either the median or posterior division of the plexus.

Results: All patients had complete surgical analgesia. In 23 patients (77%) DP was lateral to KP (0.1-1,7 cm, average: 0.67 cm), in 5 patients (17%) both points were identical and in 2 patients (6%) DP more medial to KP (0.4-0.5cm). In all patients where DP was lateral to KP the median or posterior division of the plexus was found at the first attempt. In the patients where DP and KP were identical, the median or posterior division was found slightly more medially (0,4 and 0,5 cm) in 2 of the 5 patients. In one of the patients where DP was medial to KP (0.5 cm) the posterior division was found even more medially (0.2 cm). There was no penetration of the subclavian artery. No adverse complications occurred.

Conclusion: Our results suggest that doppler ultrasound of the subclavian artery at the infraclavicular level is an easy and effective tool in identifying the needle entrance point in the performance of the vertical infraclavicular block.

Reference

1. Kilka HG, Geiger P, Mehrkens HH. Die infraclaviculäre Blockade des Plexus Brachialis. Infraclavicular vertical brachial plexus block. A new method for anaesthesia of the upper extremity. Anaesthesist 1995; 44: 339-344.