

## Comments on 'Relieving Pain after Arthroscopic Knee Surgery: Ultrasound-Guided Femoral Nerve Block or Adductor Canal Block?'

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Dear Editor,

We interestingly read the original article titled 'Relieving Pain after Arthroscopic Knee Surgery: Ultrasound-Guided Femoral Nerve Block or Adductor Canal Block?' by Rahimzadeh et al. (1) published in the 2017 edition of TJAR. The study demonstrated greater efficacy and better satisfaction in terms of the analgesic quality with femoral nerve block (FNB) in the patients. In the study, the authors found that the quadriceps femoris muscle weakness after the injection of 0.125% bupivacaine was comparable for the initial 12 h in both the FNB and adductor canal block (ACB) groups. We have a few comments on the discussion. ACB blocks the saphenous nerve which is a sensory nerve and a branch of the femoral nerve. However, the adductor canal also contains the nerve to vastus medialis (NVM), which is a branch of the posterior division of the femoral nerve. NVM is a motor nerve which is responsible for the motor weakness after ACB (2). The review article by Wan Yi Wong et al defined the location of the adductor canal using ultrasonography in volunteers, and suggested that proximal or mid-thigh ACB could lead to the proximal spread of the local anaesthetic (LA) into the femoral triangle, thus leading to motor blockade (3). Conversely, a distal ACB injection could lead to a distal spread of LA which could block the posterior branch of the obturator nerve and popliteal plexus, which contributes to the intra-articular innervation of the knee. Vastus medialis is an extensor muscle situated in the anterior compartment of the thigh, and is one of the four quadriceps muscles along with vastus lateralis, vastus intermedius and rectus femoris. It is difficult to distinguish NVM from the saphenous nerve on ultrasound during ACB (4). In many cases, the saphenous nerve cannot be

visualised, but knowing its consistent relation to the superficial femoral artery, LA is injected at both 10 o'clock and 2 o'clock positions (4). Two ways of minimising NVM involvement after ACB are as follows: using lesser volume of LA ( $\leq 10$  mL) and performing the block at a lower location ( $\leq 10$  cm above the knee joint) (5). Weakness of the quadriceps muscles affects early mobilisation in patients after knee arthroplasty and arthroscopy, with the occurrence of undesirable events, such as falling while standing. ACB has been more popular than FNB due to its relative sparing of the quadriceps muscle. However, NVM involvement after ACB negates its benefits over FNB in terms of providing analgesia without a motor block. Therefore, we suggest a lower approach and lesser LA volume for ACB to avoid post-operative quadriceps weakness.

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