NEUROLOGICAL DEFICITS AFTER PERIPHERAL NERVE BLOCKS – A CASE CONTROL STUDY

Foong TW†, Poon KH‡

†Yong Loo Lin School of Medicine, National University of Singapore
‡ Department of Anaesthesia, National University Hospital, Singapore

Introduction
- Peripheral nerve blocks (PNB) are commonly used for peri-operative anaesthesia and analgesia.
- The reported incidence rates of neurological deficits (ND) after PNB varied widely from 0.04% to 15% depending on methodology, sources of data and definitions of ND.
- We report our clinical experience on ND after PNB in about 2000 cases over a 3 year period.

Aims
- To determine the incidence of ND after PNB performed in a University teaching hospital.
- To document the outcomes of patients who developed ND after PNB.
- To identify the factors that may be associated with the development of ND after PNB.

Methodology
- Our Acute Pain Service provides direct patient follow-up for all patients who received PNB within 24 hours of the blocks.
- Patients who developed ND were followed up till resolution of symptoms, significant symptom reduction or discharged to the surgeons if deemed unrelated to the PNB.
- We reviewed our APS data from March 2008 to February 2011 using a case control methodology.
- Cases were defined as subjects who had ND 24 hours after a PNB. Controls were matched to the cases according to type of block, gender and age.

Results
- A total of 2099 PNBs were reviewed by the APS over the 3 year period, amongst which 798 upper limb blocks and 1064 lower limb blocks.
- The mean age of the patients was 38.2 years old; 85% were males.
- The incidence of ND for upper limb blocks was 3.4% at 24 hours and 2.3% at 72 hours while that for lower limb blocks was 2.2% at 24 hours and 0.75% at 72 hours.
- Logistic regression analyses did not identify the presence of diabetes mellitus, peripheral vascular disease, history of strokes or non use of ultrasound as independent predictors for neurological deficits after nerve blocks.

Discussion and Conclusion
- The incidence of transient ND after PNB is not uncommon based on results of this study. However, permanent ND related to PNB is probably rare. Our results were comparable with contemporary estimates of risk of ND after PNB.
- We did not find any predictors for the occurrence of ND after PNB in this cohort of patients.
- The strength of this study lies in the direct follow-up of all patients who received PNB and thus provide a more reliable capture of any reported neurological symptoms.
- The limitations of this study are related to the retrospective nature of the data analysis and the difficulty in determining the causal relationship between ND and PNB.
- This study provided us with data on ND after PNB in a University teaching hospital and should form the basis for the development of more robust data collection in the form of a clinical registry.

References