

◆ Background

Peripheral nerve blocks (PNB) are widely performed in Australian hospitals with excellent postoperative analgesia. However, some perioperative peripheral nerve injuries (PPNI) are attributed to regional blocks

Fortunately most block-related PPNI symptoms are transient with full recovery within days or weeks after surgery. Permanent peripheral neuropathy is extremely rare with an estimated incidence of 0.04% blocks¹.

While the etiology of PPNI is complex and often multifactorial, direct nerve damage from invasive procedures is generally considered the main culprit. As such, it is extremely difficult to distinguish block-related PPNI from the surgery as both invasive procedures performed in the same nerve/plexus distribution area. To further complicate this issue, the clinical manifestation of nerve damage is usually delayed, as a result, PPNI is often under reported since a majority of these patients have already been discharged.

Regardless of the causes, persistent postsurgical neuropathy (PPSN), defined as the presence of a new or worsened sensorimotor deficit 6 months post-surgery², remains a medical challenge with potential for long term disability. Hence, it is particularly important for early diagnosis and intervention before becoming permanent.

◆ Aims

The aims of this study are: to establish a baseline prevalence of PPSN and to estimate the incidence of neuropathic pain in patients who received perioperative PNB up to 6 months after surgery.

◆ Methods

At our hospital, a “Peripheral Nerve Block Audit” form is filled in after a regional block by the attending anaesthetist. These forms constituted our database.

After local ethics approval, a designated researcher (AN) conducted a telephone interview at 6 months or later after surgery, in which patients were asked if they experienced clinically relevant PPNI symptoms after discharge. These symptoms, in relevant nerve/plexus distribution area, included sensory and/or motor deficit (paraesthesia, pain and/or weakness).

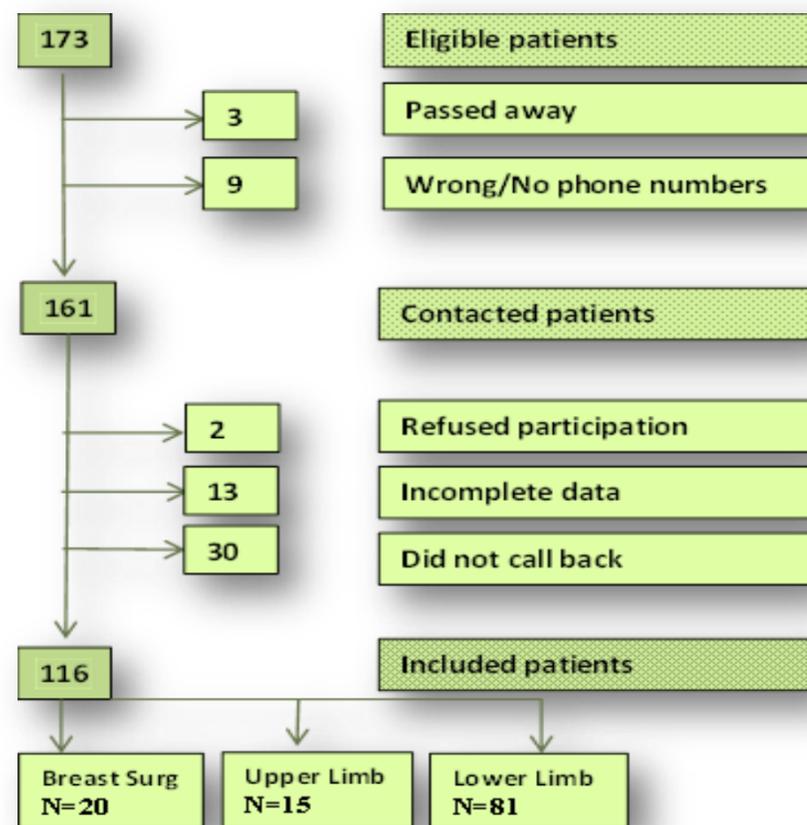
◆ Approvals

- ✓ Eastern Health Research Ethics Committee: approval obtained (LR84/2016)
- ✓ Consent: verbal consent obtained

◆ References

1. Barrington MJ, et al. Preliminary results of the Australasian Regional Anaesthesia Collaboration: a prospective audit of more than 7000 peripheral nerve and plexus blocks for neurologic and other complications. *Reg Anesth Pain Med* 2009;34:534-41.
2. Laufenberg-Feldmann R, et al. Prevalence of pain 6 months after surgery: a prospective observational study. *BMC anesthesiology*. 2016;16(1):91.
3. McCambridge J, et al. Systematic review of the Hawthorne effect: new concepts are needed to study research participation effects. *J Clin Epidemiology*. 2014;67(3):267-77.

Figure 1. CONSORT-diagram.



◆ Results

Of the 173 adult patients from 2017-Q1, data from 116 patients (20 breast surgery, 15 upper-limb and 81 lower-limb) were included and analysed (dropout reasons see Figure 1).

Our results indicated that after hospital discharge, 21% patients never had any PPNI symptoms, 67 patients (57%) experienced pain with or without paraesthesia/weakness, and 25 (21%) suffered from paraesthesia/weakness without pain.

While most symptoms persisted since surgery, 6% developed between 1 and 6 weeks post discharge.

Despite significant improvement over the time, PPNI symptoms sustained in 42 patients (9 breast, 3 upper limb and 30 lower limb) beyond 6 months after surgery, among which, 19 patients (7 breast, 2 upper limb and 10 lower limb) complained of neuropathic pain, accounting for a prevalence of PPSN 36% and neuropathic pain 16% of our cohort.

◆ Discussion

This survey is limited by sample size, retrospective data and lack of objective medical evaluation for those PPSN symptoms, in particular, the latter may well produce a Hawthorne effect that could lead to an overestimated prevalence³.

Indeed, our results are unexpected, with a much higher prevalence of PPSN¹ than the existing evidence, though the incidence of neuropathic pain was comparable². However, this study indicated an unsatisfying result of surgical intervention in terms of postdischarge PPNI control, thus, further studies are necessary with a view to improve PPSN management strategies after discharge.