Peripheral nerve blocks compared with spinal anaesthesia do not reduce opioid consumption related to initial rebound pain in ankle fracture surgery

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Background and aims:

Peripheral nerve blocks (PNBs) are increasingly used in limb fracture surgery. However, recent studies suggest that rebound pain when the block wears off may outweigh the benefits on the postoperative pain course.

The randomised “AnAnkle Trial” compared postoperative pain profiles after spinal anaesthesia (SA) and PNB anaesthesia with primary data showing a marked overall benefit with the PNBs on 0–27 hours pain and morphine consumption. We here present secondary outcome data comparing initial rebound pain with PNB versus SA.

Methods:

Ethically and legislatively approved, randomised, clinical trial with blinded outcome analysis. Adults undergoing primary internal fixation of an ankle fracture were randomised to standardised popliteal sciatic and saphenous PNBs or SA.

Exclusion criteria: habitual opioid use, multi-trauma, proximal fibular fractures, neurological dysfunction.

PNB method: ultrasound guided, popliteal sciatic and mid-femoral saphenous blocks with ropivacaine. SA method: unilateral with hyperbaric bupivacaine.

Postoperative pain regimens: paracetamol, ibuprofen and patient controlled on-demand iv morphine, electronically registered. The patients noted repeated pain scores and time of full return of sensation to the ankle (Ts). The “rebound” period was predefined as Ts+6 hours.

Variable	PNB (n = 77)	SA (n = 73)	P value
Peak pain score, NRS 0–10, mean (95%CI)	5.0 (4.4–5.6)	5.6 (5.1–6.1)	.136
Morphine 6 h rebound period, mg, mean (95%CI)	17.0 (13.9–20.1)	18.3 (14.6–21.9)	.608

Results and Discussion:

We included 150 patients. Median age 55 yrs (range 18–84), 65% women. The groups had comparable demographics, comorbidity, time to surgery, fracture types and preoperative pain.

Mean block duration was 3.5hours (3.2–3.9 95%CI) with SA and 16.5hours (15.8–17.3) for PNBs. The results (Table) show no difference between SA and PNB in morphine consumption during the defined rebound periods and no difference in peak pain scores.

Thus, despite the overall benefit of PNBs versus SA on pain and morphine consumption, rebound pain was as intense or relatively worse after PNBs considering the later onset, much further from the surgical trauma.

Conclusions: The immediate rebound pain reaction when the block wears off is not reduced with PNB anaesthesia, despite delaying the onset of postoperative pain for 13 hours.