

Rebound pain occurrence in patients undergoing forefoot bone surgery under popliteal sciatic nerve block or distal sensory ankle block

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General data

Topic: 22: Regional Anaesthesia

Abstract text

Abstract text: Background and Goal of Study: Rebound pain (RP) when peripheral nerve block (PNB) wears off affects nearly 50% of patients ⁽¹⁾. The underlying mechanisms of RP remain poorly understood but induced inflammation at surgical site might play a role ⁽¹⁻²⁾. Forefoot surgery can be performed under either ankle block (AB, sensory block) or popliteal sciatic nerve block (PSNB, mixed motor/sensory block). This study compares RP incidence between PSNB and AB and questions the role of local inflammation ⁽³⁾.

Materials and Methods: Patients were randomized to receive either ultrasound-guided PSNB or AB with 0.5% ropivacaine followed by standardized general anesthesia. RP was defined as severe pain (NRS > 7; NRS 0-10) within 12 to 24 hours after PNB resolution. Repeated measures of foot temperature and oxygen perfusion near the surgical site (INVOS) were used as indirect assessment of local inflammation. Chi-squared tests and a mixed linear model will be used for statistical analysis.

Results and Discussion: 54 were analyzed. No difference in RP occurrence was observed between PSNB 36% (9/25) and AB 31% (9/29) groups and (p=0.92). Temperature elevation and INVOS values did not differ according to the type of block. Only temperature elevation was significantly associated with time (p=0.01) and RP occurrence (p=0.04), (Table 1).

Conclusion(s): According to these preliminary results, RP in forefoot surgery does not depend on the type of PNB but is correlated with foot local temperature increase (i.e., with the degree of local inflammation induced by surgery and facilitated by the PNB ⁽³⁾).

References:

⁽¹⁾Garrett S.Barry et al BJA 2020

⁽²⁾Lavand’homme et al Curr Opin Anest.2018

⁽³⁾Yamada et al, RAPM 2016

Table 1: Results of Mixed Linear Analysis

Dependent Variable	Explanatory Factor	F Value	DDL (Denominator)	p-Value
Temperature	4 time points	4.26	35.61	0 .01*
	Occurrence of RP (yes/no)	4.54	39.38	0 .04*
	Type of PNB (PSNB vs AB)	0.32	40.34	0.56
INVOS Values	4 time points	2.59	35.68	0.07
	Occurrence of RP (yes/no)	1.79	40.70	0.19
	Type of PNB (PSNBvs AB)	0 .58	41.95	0.45

F Value: statistic calculated to assess the significance of each explanatory variable
DDL: degrees of freedom for the denominator of the F statistic
p-Value: statistical significance of the F value for each explanatory factor
*statistically significant results (p-value <0.05)
4 time(t) points: t1=Pre-block time/t2=Post-block time/ t3=Time in the recovery room/ t4=Day 1 time

Key-Words

1st Keyword: Pain,postoperative
2nd Keyword: Anaesthetic techniques,regional
3rd Keyword: Surgery,orthopaedic

Ethical Research Declaration

Abstract type: non-case report: 5

Ethical Research Declaration Fields

I hereby confirm that an institutional review board (IRB), independent ethics committee (IEC), ethical review board (ERB) or ethics committee for animal experimentation approved the study: Yes
Institution: Cliniques Universitaires Saint-Luc
Name of the Ethical Committee Chair: Pr. JM Maloteaux
Approval reference: B4032022000083
Date of approval: 22/12/2022
I hereby confirm that written consent has been received from the patient Yes

Conflicts of Interest

Conflict of interest to declare?: No

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