The PReliMinAry (Pain Relief in Major Amputation) Survey

Original paper

Authors: Lauren Shelmerdine¹, Brenig Llwyd Gwilym², Graeme Keith Ambler³, David Charles Bosanquet², Sandip Nandhra¹,⁴

Author affiliations:
1. Northern Vascular Centre, Freeman Hospital, Newcastle upon Tyne, UK
2. South East Wales Vascular Network, Aneurin Bevan University Health Board, Newport, UK
3. Bristol Centre for Surgical Research, University of Bristol, Bristol, UK
4. Population Health Sciences Institute, Faculty of Medical Sciences, Newcastle University, UK

Corresponding Author contact details:
Mrs L Shelmerdine
Northern Vascular Centre, Freeman Hospital, Newcastle upon Tyne, UK
Lauren.shelmerdine@nhs.net
Telephone number 0191 213 8576
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Abstract

Objectives

Major Lower Limb Amputation (MLLA) is associated with significant peri- and post-operative pain and has been identified as a research priority by patient and healthcare groups. The PReliMinAry survey was designed to evaluate existing MLLA analgesia strategies; identifying areas of equipoise and informing future research.

Methods

A targeted multi-national, multi-disciplinary survey was conducted via SurveyMonkey® (5/10/2020-03/11/2020) and advertised via social media and society email lists. The 10-questions explored ‘pain-team’ services, pre-operative neuroleptic medication, pre-incision peripheral nerve blocks and catheters, surgically placed nerve catheters, post-operative adjunctive regimens, future research engagement and equipoise.

Results

76 responses were received from 60 hospitals worldwide. Twelve hospitals(20%) had a dedicated MLLA pain team, seven(12%) had none. Most pain teams(n=52; 87%) assessed pain with a 0-10 numerical rating scale. Over half of respondents “never” preloaded patients with oral neuroleptic agents(n= 42/76; 55%).

Forty-seven hospitals(78%) utilised patient controlled opioid analgesia. Most hospitals are able to provide pre-incision loco-regional peripheral nerve blocks, nerve catheters and
surgical nerve catheters (95%, 77%, and 90% respectively), but use was variable. Ultrasound (US) guided peripheral nerve catheters were “infrequently” or “never” used in
57% of hospitals, whilst 23% “infrequently” or “never” utilise surgically placed nerve catheters.

Conclusions

The survey revealed a preference towards ‘single-shot’ nerve blocks and surgical catheters. A difference between the use of US guided nerve catheters and those surgically placed likely reflects the difference of literature evaluating these techniques. Most respondents felt there was equipoise surrounding future trials evaluating nerve blocks/catheters, but less so for surgical catheters.
1. Introduction

Major Lower Limb Amputation (MLLA) is associated with significant peri- and post-operative pain and The Vascular Society\textsuperscript{[1]} and Vascular Anaesthesia Society of Great Britain and Ireland identified this as a research priority after patient and healthcare professional prioritisation exercises.\textsuperscript{[2]} 10,022 MLLA were performed in UK NHS hospitals, in the three year period between 2017 and 2019, according to the National Vascular Registry.\textsuperscript{[3]} The PReliMinAry survey was designed to evaluate existing strategies regarding peri- and post-operative MLLA analgesia, and identify areas of equipoise and uncertainty, thereby informing future research.

2. Materials and methods

A targeted multi-national, multi-disciplinary survey of peri-operative MLLA analgesia care was designed by a multi-professional group, and conducted via SurveyMonkey\textsuperscript{®} (5/10/2020-03/11/2020) and advertised via social media and society email lists. Any medical professional involved in the MLLA pathway could partake in the survey. Ethical approval was not required for this study. Where multiple answers were received from the same institutions, data from the most senior person responding was analysed. The 10-question survey explored current pain practice around MLLA including ‘pain-team’ services, pre-operative neuroleptic medication, pre-incision peripheral nerve blocks and catheters, surgically placed nerve catheters, post-operative adjunctive regimens, future research engagement and equipoise.

3. Results

76 responses were received from 60 hospitals worldwide, (54 UK, 13 Europe, 5 USA, 2 Australasia and 2 Asia). The majority of respondents were medical (63 surgical and 8
anaesthetic) including 40 Consultants/Attendings, 27 registrars/residents and 4 fellows. The remaining responses were from physiotherapists (2), nurse practitioners (2) and 1 tissue viability nurse. 9 centres submitted duplicate responses; for 6 of these centres the answers were counted from Consultants, the remaining 3 from registrars/fellows. Where duplicate responses were received, the answers from the most senior respondent were utilised.

Twelve hospitals (20%) had a dedicated MLLA pain team, seven (12%) had none, and the remainder (n=41; 68%) had a ‘generic’ pain team who reviewed MLLA patients post-operatively. Most pain teams (n=52; 87%) assessed pain with a 0-10 numerical rating scale. Oral neuroleptic agent preloading was “never” done by over half respondents (n=42/76; 55%). From the remaining 45% of health practitioners, preloading is variably offered (“infrequently” n=18/76; “sometimes” n=4/76; “often” n=10/76; “always” n=1/76).

Table 1 shows the availability and frequency of use of loco-regional analgesia, by hospital. (See Table 1)

The commonest duration that both ultrasound-guided, and surgical nerve catheters are left in situ was 3 days (n=12 and 17 respectively), followed by 5 days (n=9 and 15 respectively). Forty-seven hospitals (78%) utilised patient controlled opioid analgesia: 33 as adjuncts to all blocks (neuro-axial and loco-regional), 2 as adjuncts to neuro-axial analgesia only and 12 in addition to nerve catheters (either US guided or surgical).
Three final questions asked respondents if they would be happy to randomise patients to receive one of the three interventions detailed in Table 1, versus no intervention/placebo. Sixty-five (86%) were willing to randomise patients to pre-incision ultrasound-guided nerve blocks. The most common barrier to randomisation was lack of equipoise (n=9). Sixty-two (82%) were willing to randomise patients to pre-incision ultrasound-guided nerve catheter; a lack of expertise (n=15) was the predominant obstacle, with lack of equipoise also an issue (n=7). Fifty-two (68%) were willing to randomise patients to a surgically-placed nerve catheter, with those unwilling citing that it is already the standard of care (n=16) and due to a lack of equipoise (n=11).

4. Discussion and Conclusion

The PReliMinAry survey demonstrates reasonable homogenous management regarding pain assessment, the availability of a ‘pain-team’, pre-operative prescription of neuroleptics, and the use of patient-controlled analgesia peri- and post-MLLA. Peripheral nerve blockade practice however, in all forms, is variable. Most hospitals have the capability to provide pre-incision loco-regional peripheral nerve blocks, nerve catheters and surgical nerve catheters (95%, 77%, and 90% respectively), but these are inconsistently utilised with a preference towards ‘single-shot’ nerve blocks and surgical catheters. Ultrasound-guided peripheral nerve catheters were “infrequently” or “never” used in 57% of hospitals, whilst 23% “infrequently” or “never” utilise surgically placed nerve catheters. It is likely this difference reflects the difference of literature evaluating these two catheter-based techniques, however lack of expertise was the commonest reason reported in the survey. [4-6].
Most had equipoise for randomising patients into future control trials evaluating nerve blocks/catheters. Fewer of the respondents perceive equipoise with surgically-placed nerve catheters, in part due to it being “already standard of care”, possibly due to comparatively superior evidence.\(^5\) However, the majority (68%) expressed willingness to randomise their patients in a trial evaluating this intervention, which is likely a reflection of the low-quality of evidence supporting their use.\(^6\) There are several limitations. Our results are disproportionally representative of UK practice since 90% of hospitals represented are within the UK. This being said, given the comparative lack of evidence to guide practice in a number of areas, it is likely that the variation seen here would apply to other countries. Similarly, far more surgical medical staff responded in comparison to anaesthetic medical staff (63 vs 8), potentially introducing bias. The number of respondents per hospital was relatively low, with the potential for responses to reflect individual bias’. Non-response bias is a limitation true to all surveys, with self-selected respondents. Finally, whilst this survey does provide valuable snap-shot data on current peri-MLLA analgesic practice, our methodology for exploring equipoise within the vascular community remains inferior to a more rigorous approach - such as the Delphi approach.\(^7\) Future studies should aim to utilise our ‘first-step’ data for this process.

Nonetheless, these survey data demonstrate that peri- and post-operative pain management is variable, and that there is broad equipoise in the vascular community for further randomised investigations of pain control, to comprehensively inform future practice.
Declarations

Declaration of Conflicting Interests

The Authors declare that there are no conflicts of interest

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