Author's response to reviews

Title: Intraoperative Clinical Predictors Of Acute Postoperative Pain After Hip Arthroscopy

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Author's response to reviews: see over
Dear Editors,

RE: 2nd Revision - Original Research Article - Intraoperative Clinical Predictors Of Acute Postoperative Pain After Hip Arthroscopy

We are proud to re-submit our manuscript after scrupulous revisions addressing the concerns highlighted by the reviewers. Please refer to the ensuing text:

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Dan Benhamou

Reviewer’s report:

This original research was performed to evaluate several surgical factors and their role in the occurrence of postoperative pain after hip arthroscopy. Although this article may be of some interest for anaesthetists, its target seems rather directed toward orthopaedic surgeons. As such, it would be more valuable to suggest its publication in a journal which readership is made of surgeons. That being said, and although the number if patients included was not very large, results may be useful and may have some clinical relevance.

- We are most grateful for Dr Benhamou’s kind comments. We are glad that he considers the results of our study valuable in guiding anaesthetists on the crucial issue of acute postoperative pain management relevant to this operation.
Additional comments and questions are detailed below

Title not adequate; it should state that the study was centred on intraoperative surgical predictors only.

- We thank Dr Benhamou for highlighting this oversight. The title has been changed appropriately to highlight the focus on positive findings of intraoperative effects; however we have retained the word “clinical” to refer to the fact that non-operative, clinical factors were considered and found to be non-influential on postoperative pain (Results, Page 8, Lines 11 - 15).

Please write mmHg all along the manuscript

- The abbreviation has been modified as per Dr Benhamou’s guidance.

Introduction

Please state early why a lower pressure would lead to less pain. The explanation is given in the Methods section P5, L6-8 and the sentence should be moved to the Introduction section.

- We have re-inserted the specified statement into the Background section (Page 4, Lines 18-20) as suggested by Dr Benhamou.

P5, L18: paracetamol
Discussion: Is the effect of reduced pressure on surgical outcomes known and would this effect counterbalance the positive effect on pain? Please explain and add a sentence in the manuscript.

- There is no current evidence in the literature suggesting that use of a lower infusion pressure impedes timely and efficacious completion of any hip arthroscopic intervention. Indeed, the surgical author found that less periarticular soft tissue
swelling developed during long cases where 40 mm Hg was used, resulting in less restriction of arthroscopic instrument mobility within the joint. We have added details pertaining to these facts into the manuscript (Discussion, Page 9, Lines 15 – 21).

References

Ref 2 and Ref 16. No upper case in titles of articles

- The erroneous capitalizations have been corrected.

Reviewer's report

Title:
Clinical Predictors of Postoperative Pain After Hip Arthroscopy

Version:
paul J. Zetlaoui M.D

Reviewer's report

1. This is a retrospective study, with all the limits of a retrospective study; but, at least, the main result of the study, i.e. e. the importance of the fluid infusion pressure, seems to be valid.

2. However, corrections and explanations are needed.
We thank Dr Zetlaoui kindly for his positive review of our work.

Corrections

Abstract- Methods and in all along the text

Please change : mmhg in mm Hg

- This capitalisation error has been corrected throughout the manuscript.

Methods P2

Please change gram in g; Please change paracetomol in paracetamol

- These abbreviation and spelling oversights have been rectified.

....“opioid was titrated”.... Which opioid?

In this study about postoperative pain, the nature of the opioid influence the early postoperative pain intensity, long lasting opioids as fentanyl have different impact than short acting such as alfentanil or remifentanil. Please precise the name of the opioid used intra-operatively.

- Alfentanil 250mcg boluses were used routinely as the rapid onset intraoperative opioid of choice, and as mentioned by Dr Zetlaoui, is short acting and hence would not influence early postoperative pain. We have added these specifications to the text (Methods, Page 5, Lines 21 - 22).
In most studies a NRS score of 3 is no pain and 6 is considered as "pain" or under treated postoperative pain. Why did you choose this cut off value, meaning that pain was perhaps insufficiently treated in some patients?

- We must apologise to Dr Zetlaoui for the misunderstanding in our methodology caused by the lack of information in the original manuscript. In our institution standard of care in the recovery room regarding postoperative analgesia delivery is to administer analgesia until either (1) an NRS score of at least 6 is achieved AND the patient does not request further analgesia, or (2) intolerable opioid side effects occur. As such we believe that on a patient-by-patient basis, it is unlikely that patients pain is insufficiently treated. We hope that this information clarifies the issue raised by Dr Zetlaoui, and have included these details in the text (Discussion Page 9, Lines 27 – Page 10, Lines 1 – 4).

I was unable to find in the paper of Mcintyre (incorrectly spelt), any scale or rule to convert opioids in morphine equivalent. Please explain or correct as needed

- Many thanks to Dr Zetlaoui for identifying our spelling error and erroneously referenced opioid conversion. The correct reference is in fact by the same author, but a different paper: "Macintyre PE, Russell RA, Usher KAN, Gaughwin M, Huxtable CA: Pain relief and opioid requirements in the first 24 hours after surgery in patients taking buprenorphine and methadone opioid substitution therapy. Anaesth Intensive Care 2013, 41:222–230." The paragraph pertaining to opioid conversion is on page 223, column 2, paragraph 3: “To enable comparisons to be made, all intra-operative and postoperative fentanyl doses were converted to morphine equivalent (ME) doses using 10 mg IV morphine equals 200 µg IV fentanyl, a conversion ratio we have used in our clinical practice since 1989”. The correct reference has been inserted into the bibliography and the spelling corrected.
Ropivacaïne and Morphine; please change to ropivacaïne and morphine.

- The mistaken capitalisations have been corrected.

Statistics = Ok

Results P4

Total perioperative (intra + postoperative) doses of 0.15 mg/kg are low doses, nearly 10 mg for a patient weighting 70 kg; don't you think these low doses can influence the intensity of postoperative pain?

- Dr Zetlaoui has made an important point here; in fact Baker et al[1] identified that the strongest predictor of increased opioid requirements after hip arthroscopy was reduced intraoperative opioid dose. However, as we have identified both clinically and in our results, total opioid requirements after hip arthroscopy vary widely, and in some cases no postoperative opioid is needed at all. As such our routine practice is to administer consistent, conservative doses of long acting intraoperative opioid, knowing that additional analgesia can always be titrated postoperatively. This situation is more desirable than a relative opioid overdose in the unpredictable circumstance where the patient has minimal postoperative pain.

Discussion P2

“Anecdotally ..... their postoperative pain.” Please delete

- The sentence has been deleted as suggested by Dr Zetlaoui.
Discussion P4

“Our clinical.... Alone” . “ Please delete

- This sentence has been excluded as per Dr Zetlaoui’s guidance.

List of abbreviations

Please correct

MmHg mm Hg

ML - Millilitres ml – milliliters

- The incorrect capitalisations in this section have been changed.

References

Ref 6: potter QM et al:

Psychological distress in hip arthroscopy patients affects postoperative pain control.


Please correct

potter QM et al:

Psychological distress in hip arthroscopy patients

The erroneous journal name in the reference has been rectified.

Table 1

I think that Age (years) 34 (18 – 73) means : mean (extreme values) and not SD, please correct

Please correct for all data as needed

- Many thanks to Dr Zetlaoui for highlighting this oversight. Footnote (b) in Table 1 has been corrected to specify data as [mean (range), and number (proportion)].

Table 2.

It is somewhere surprising that there no correlation between pain severity and postoperative IV morphine requirements (p=0.19), as morphine was administrated as a function of pain. Please explain.

- We agree with Dr Zetlaoui that these results were unexpected. We must clarify that the lack of correlation is in fact between volumes of arthroscopic fluid infused against highest NRS pain severity, lowest NRS pain severity, and morphine requirements, rather than between NRS pain severity and morphine requirements directly. Nonetheless, the correlation coefficient shows a positive trend (Pearson’s R 0.12) between arthroscopic infusion fluid volumes and morphine requirements; this result is less surprising. We agree that this result does not reach statistical significance. We propose that a complicating factor to this interpretation is that as postoperative morphine doses escalate, sedation and respiratory depression contraindicate further opioid administration, even though patient reported NRS scores may remain high. Clinically this phenomenon is frequently observed, and is a limitation of analgesia based primarily on opioid administration. We have included this discussion in the text (Discussion, Page 10, lines 1-6).

Figures .

Please improve quality if possible.
- We have increased the figure resolution by a factor of 4, reduced the size of the data points in the graphs, and changed the appearance of the data points in the graphs to improve clarity as suggested by Dr Zetlaoui.

- **REVISION NOTES: REFERENCES**


Regards,

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