Author's response to reviews

Title: Analysis of kidney dysfunction in orthopaedic patients

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Author's response to reviews: see over
Thank you very much again for your interest and concern. Also thank you for the reviewers’ comments and considerations. Corrections made, as requested, step by step, hoping it clarifies the reviewers’ suggestions.

Please find submitted the manuscript entitled “Analysis of renal dysfunction in orthopaedic patients” - Research article - (Authors: Konstantinos Kateros, Christos Doulgerakis, Dr Spyridon Galanakos, Vasileios I Sakellariou, Stamatios A Papadakis and George A Macheras for consideration and potential publication in “BMC Nephrology”.

This paper has previously been submitted for consideration in your journal and is currently being re-submitted with revisions made according to the reviewer’s comments (Date Submitted: 25 October 2011, Manuscript ID: MS: 3471876216244337)

We would like to inform you that a red colour was used for all the suggested revisions in the re-submitted manuscript.

**Editorial Comments:**

**Abstract**
At present, the Background section of your Abstract only contains the study rationale. Can you please revise this so the first sentence puts your study into context in its field. Please remember to update both the online and manuscript.

Thank you for your comment. We modified the Background section of our Abstract according to the mode of this study, after the editor’s suggestion.

**Abstracts.**
Ethical Committee. Can you please include the full name of the ethical committee that granted approval for your study?

Correction made as requested.

“The institutional review board/ethics committee of the authors’ institutions has approved the conduction of our study.”
Copyedit

Further consideration of your manuscript is conditional on improvement of the English used - please bear in mind that as we are a free-access publisher, we cannot bear the costs of copyediting English ourselves. Please ensure particular attention is paid to the abstract. You should have a native English speaking colleague help you with this, if possible, or you may need to use a professional language editing service. For authors who wish to have the language in their manuscript edited by a native-English speaker with scientific expertise.

Thank you very much for your comment and your interest. We would like to inform you that we have done our best regarding the copyediting English used.

Comments for Manuscript “Analysis of renal dysfunction in orthopaedic patients”:

This is a retrospective study examining the incidence and risk factors for post-operative renal dysfunction in patients undergoing orthopaedic procedures. This study answers interesting questions regarding pre-op risk factor assessment for post-op AKI. Ultimately, the study could be improved with the following:

Goal: is stated to assess pre-op risk assessment but it seems that incidence rates for AKI in this population are unknown and are also being reported in this study. I would redefine the goal of this stud to determine the incidence of AKI and to identify pre-op risk factors for post-op AKI.

Thank you very much for your comment. Correction made as requested.

Definitions:

Acute Kidney Injury is the preferred term for ARF and I would change the terminimology accordingly.

Thank you very much for your suggestion. Correction made as requested.

RD: Please change ‘renal’ to ‘kidney’ and use KD

Thank you very much for your suggestion. Correction made as requested.
AKI: the definitions quoted that define AKI as a rise in scr of 0.5 mg/dL seem arbitrary and should be referenced. Definitions have been established by AKIN and RIFLE and these should be used.

Thank you very much for your suggestion. Corrections made as requested.

In general, this study uses RD too liberally and it is confusing to know when the authors mean AKI, CKD or AKI on CKD. Please use specific language when describing these diseases.

Thank you very much for your consideration. We tried to clarify using the term RD in an appropriate form so to be comprehended in the re-submitted manuscript.

Methods:
1025 admission due to trauma were admitted, 893 orthopedic procedures were performed; patients with known renal injury were excluded:

1. Please define kidney injury: acute or chronic. Also, I disagree that patients with pre-op CKD should be excluded as they may be at higher risk of post-op AKI. If the authors do not want to include them in the main analyses than a subset analyses of their risk should be conducted.

   Thank you for your comment. This is true. The patients with pre-op CKD were included in our study.

2. The criteria used to define AKI are not listed. Please delineate the exact criteria that were used

   Thank you very much for your suggestion. Correction made as requested

3. Please define the peri-op complications

   Thank you for your comment. We separated the complications (preoperatively / postoperatively) in Table 2.
4. Please define the types of AKI that were identified: pre-renal AKI, intrinsic AKI, ATN, AIN, etc.

Thank you for your comment. Unfortunately we did not examine these parameters in this series.

5. Please provide information on the patients who were excluded from this analysis, in particular:
   a. Reasons for exclusion
   b. Comparisons to the study population

Thank you for your comments. All postoperative patients admitted to our department, who underwent an emergency orthopaedic surgery, were eligible to the study. The patients which submitted for conservative management were excluded.

6. 1025 patients were admitted to the hospital and 893 had surgery.

Thank you comment. We will clarify that the total number of patients admitted to our department for any pathology were 1025. However, only 893 of them needed surgical intervention.

**Results and Discussion:**

1. Please re-order the paragraphs. The electrolyte abnormalities seem inconsequential and should be presented after the main findings. Also, the relevance of a low BUN is unclear – is the suggestion that BUN is a poor diagnostic marker of AKI? If that is the case, this is not novel and already well known. A more interesting finding would be to report the degree of elevation in serum creatinine for patients with pots-op AKI.

Thank you for your comment. The Results and Discussion sections were re-written according the reviewer’s suggestions.

2. The follow-up time is not reported. Several clinical outcomes are reported, such as the persistence of kidney dysfunction requiring dialysis. However, the reader needs to know the duration of follow-up.
We retrospectively analyzed the medical records of 1025 admissions to our department due to surgical trauma that were operated on between February 2008 and March 2009, in a period of 13 months.

3. It is not clear if ‘irreversible’ renal dysfunction means the progression to ESRD. If this is the case than please make that statement.

Thank you very much for your consideration. We tried to clarify the aforementioned term in an appropriate form so to be comprehended in the re-submitted manuscript.

4. Please define dehydration and if this in reference to pre-renal AKI? Do the authors mean volume depletion? Did the patients who had ‘dehydration’ really have hemodynamic collapse?

Thank you for your comment. The term “dehydration” refers to perioperative dehydration in orthopaedic surgeries with blood loss.

5. The authors do not make a compelling enough summary and conclusion of their own data. Their study demonstrates that many modifiable risk factors for post-op AKI are present, including better management of fluid status, selection of pain control methods, use of RAS inhibition. These should framed in the conclusion as important clinical factors to be assessed in the pre-op period by the orthopedic surgeon.

Thank you for your suggestion. Correction made as requested

6. It would also be instructive to know if patient management was influenced by the level of serum creatinine versus eGFR. It is very well known that scr is a poor marker of kidney function. I would assume that since this population is elderly, that scr might mislead orthopedic surgeons to believe pre-op kidney function might have been OK rather than poor. This analysis might enhance the goal of this study to identify pre-op risk assessment tools.

Thank you for your comment. We had already estimated the pre-operative and postoperative values of GFR but we did not find any significant correlation with pre-op risk factors.
7. Did patients with sustained AKI, compared to transient AKI, have higher mortality?

We could not reveal differences in the mortality rates between these two groups. However, this could be related to the sample size of our study, so such a statement could not be statistically supported.

Tables:

1. Table 3: Is known how many patients had pre-renal versus intrinsic AKI?
   Unfortunately we did not examine these parameters

2. Table 4 seems superfluous
   Thank you for your comment. We decided to omit the table 4.

3. Table 5: please do not use ‘success’ and ‘failure’. Please tell us the outcome. Also, the table is not clear, I am not sure what the variables in the far left column represent.
   Thank you for your comment. We changed the terms “success” and “failure”, showing the final outcome. The left column represents the examined risk factors

Reviewer's report:

Major compulsory revision:
Definition of renal dysfunction is not clear. Acute kidney injury should be defined either as per AKIN criteria or RIFLE.
Thank you for your suggestion. Correction made as requested

Method section does not clearly state how they went about selecting the patients and the language is very confusing. For example the last line in the method section states "As term failure was defined any irreversible renal filtration" which does not make any sense.
Thank you for your suggestion. The Method section was re-written according the reviewer’s suggestions.
There are lot of inconsistencies in the paper throughout as it is also not clear what the authors mean by "Patients with known renal injury were excluded". Renal injury and renal dysfunction are used interchangeably without any clear indication.

Thank you for your suggestion. Correction made as requested.

Background: It does not state why the authors chose this particular definition of renal dysfunction rather than the widely used and accepted definition of acute kidney injury (AKIN or RIFLE). This section has lot of grammatical errors and the language is also very confusing.

Thank you for your suggestion. The aforementioned section was re-written according the reviewer’s suggestions.

Result section: There is a lot of repetition regarding what is already stated in the tables. It is not clear how peri-operative dehydration and shock were defined.

Thank you for your suggestion. Correction made as requested. The aforementioned section was re-written according the reviewer’s suggestions.

Again the result section seemed like it was all over the place. There are lot of grammatical errors all through out this manuscript. There are many confusing statements through out ex: "Furthermore we found a significant main effect of the estimated potential risk factors in renal function after an episode of acute renal failure"

"Heart failure..., we found that not contribute significantly to success of failure to gain the patients their preoperative renal function."

Thank you for your suggestion. Corrections made as requested.

Discussion: Again the language is very confusing and at times does not make sense ..ex " This study demonstrates.....in orthopedic population who admitted in
our hospital over a period of one year. Also an assessment of numerous of potential risk factors of postoperative RD was carried our". Again this whole section is not very clearly written and requires a lot of work. The whole manuscript is full of major grammatical errors too.

Thank you for your suggestion. Corrections made as requested

Thank you very much and we appreciated the opportunity to improve our manuscript
Kind regards.
Yours Sincerely
Spyridon P. Galanakos