**Reviewer’s report**

**Title:** Which is the Best Treatment of Pediatric Upper Urinary Tract Stones among Extracorporeal Shockwave Lithotripsy, Percutaneous Nephrolithotomy and Retrograde Intrarenal Surgery: A Systematic Review

**Version:** 1  **Date:** 10 Apr 2019

**Reviewer:** Hasan Serkan Dogan

**Reviewer's report:**

It is an encouraging attempt to make a SR on an important pediatric health problem in some geographic areas of the World. I read with great interest and I want to congratulate authors for their efforts.

I have some criticisms and contributions below.

1. Overall: English language and grammar should be reviewed.

2. The authors mentioned the potential biological effects of ESWL. Could you please clarify these biological effects and mention whether these effects are transient or permanent?

3. Did the authors used RIRS and URS for the same purpose (line 101 and 166)?

4. Did the studies included in the SR give the complete SF rates or SF+CIRF? This should be clarified.

5. Are the stone burdens similar in these comparative studies? (for example: study 15 and 22)… if the answer is 'no', please underscore this.

6. The modern ESWL procedure is and should be performed almost everytime under ultrasonographic guidance. Therefore, if somebody reports floroscopy times for ESWL, it means that they use scopry for ESWL. The importance of USG-guided ESWL should be mentioned.

7. When comparing success and complication rates of different therapeutic modalities, the authors should consider the stone size, patient age, stone location, caliber of the instrument, history of previous interventions. Therefore, it is (especially in children)
almost impossible to make an optimum recommendation for the general pediatric population. It should be strongly mentioned in the paper that there are many factors which should be considered to make a recommendation.

8. This paper is not suitable to be titled as a meta-analysis since the number of RCT comparing two different techniques is very limited. There are 3 RCTs: ref 16: ESWL vs PCNL, ref 20: ESWL vs RIRS, ref 23: PCNL vs RIRS. To make a high quality meta-analysis, you should have more than one RCT.

9. In the recent studies, I realize that ESWL is started to be ignored/underrated, PCNL is started to be shown more traumatic and RIRS is started to be presented as a magic treatment option. However, every modality has its own advantages and disadvantages. For example: ESWL has unique properties that gives you the opportunity of cleaning the Stones with no surgical intervention after 20-30 minutes superficial anesthesia. But you have to chose the appropriate patients (there are nomograms for pediatric ESWL patients). The complications of PCNL depends on the experience of the surgeon and instrument sizes. Today, you can make miniaturized -even micro- PCNL with very low complication rates and very high single session stone free rates (even stentless PCNL instead of RIRS). In my opinion, RIRS in pediatric patients is overrated. You can easily make RIRS in a periadolescent child with standard instruments, however in a small child it is impossible to place the ureteral Access sheath or the other instruments. This problem is tried to be overcome by placing ureteral stents to provide passive dilatation. Therefore it means multiple sessions under anesthesia. Especially in children, when comparing results of different techniques, it is not a correct approach to compare the final stone free status. The time to reach the stone free status and the number of sessions under anesthesia is also important. When, you read the relevant articles in this sight, you will see that the 'Efficacy Quotient' is 50% of the reported stone free rates (in a small child: one session for passive dilatation, one session for the lithotripsy+stent placement, one session for stent removal= 3 sessions for 1 stone-free status.)…. This fact should strongly be mentioned in the paper… If the authors try to compare (from the data they gathered) the EQs of these modalities, they will find that RIRS is not so much superior to others… if they could do that it will be more informative for the readers and be the first SR which compares the real EQs.

10. According to my experience in children, the range of motion of RIRS is not wide as mentioned in the paper. The renal pelvis of children is significantly smaller than adults, and especially for lower calicela Stones, there is no enough space for downward flexion of the tip of ureteroscope.
Please confirm that you have included your review in the 'Comments to Author' box? As a minimum standard, please include a few sentences that outline what you think are the authors' hypothesis/objectives, their main results, and the conclusions drawn. Your report should constructively instruct authors on how they can strengthen their paper to the point where it may be acceptable for publication, or provide detailed reasons as to why the manuscript does not fulfill our criteria for consideration. Please supply appropriate evidence using examples from the manuscript to substantiate your comments. Please break your comments into two bulleted or numbered sections: major and minor comments.

Please note that we may not be able to use your review if no comments are provided.

Please only upload as attachments annotated versions of manuscripts, graphs, supporting materials or other aspects of your report which cannot be included as text in the 'Comments to Author' box.

Yes

**Are the methods appropriate and well described to allow independent reproduction of experiments?**
Please state in the 'Comments to Authors' box below what you think are the strengths and weaknesses of the methods (study design, data collection, and data analysis), and what is required, if anything, to improve the quality of reporting

Yes

**Does the work include the necessary controls?**
If not, please explain in the 'Comments to Author' box below.

No

**Are you able to assess the statistics?**

- Are the statistical test(s) used in this study appropriate and well described?

- Is the exact sample size (n) reported for each experimental group/condition (as a number, not a range)?

- Are the description of any error bars and probability values appropriate?

- Are all error bars defined in the corresponding figure legends?

- Has a sample size calculation been included, or a description and rationale about how sample sizes were chosen?
Please can you confirm which of the following statements apply to your statistical assessment of the manuscript (Please include details of what the authors need to address in the 'Comments to Author' box):

I have been able to assess all of the statistics in this manuscript (please refer to checklist above)

**Are the conclusions drawn adequately supported by the data shown?**
If not, please explain in the 'Comments to Author' box below.

Yes

**Quality of written English**
Please indicate the quality of language in the manuscript:

Not suitable for publication unless extensively edited

**Should the manuscript be highlighted for promotional activity?**
Articles that are deemed of interest to a broad audience can be promoted in a variety of ways. This could be through email updates, postings on the BioMed Central homepage, social media, blogs and/or press releases. Please indicate in the text box below whether you think this manuscript should be considered for promotional activity, indicating your reasons why (e.g. what is the most newsworthy aspect of the research).

No

**Declaration of competing interests**
Please complete a declaration of competing interests, considering the following questions:

1. Have you in the past five years received reimbursements, fees, funding, or salary from an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

2. Do you hold any stocks or shares in an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

3. Do you hold or are you currently applying for any patents relating to the content of the manuscript?

4. Have you received reimbursements, fees, funding, or salary from an organization that holds or has applied for patents relating to the content of the manuscript?

5. Do you have any other financial competing interests?

6. Do you have any non-financial competing interests in relation to this paper?
If you can answer no to all of the above, write 'I declare that I have no competing interests' below. If your reply is yes to any, please give details below.

No

I agree to the open peer review policy of the journal. I understand that my name will be included on my report to the authors and, if the manuscript is accepted for publication, my named report including any attachments I upload will be posted on the website along with the authors' responses. I agree for my report to be made available under an Open Access Creative Commons CC-BY license (http://creativecommons.org/licenses/by/4.0/). I understand that any comments which I do not wish to be included in my named report can be included as confidential comments to the editors, which will not be published.

I agree to the open peer review policy of the journal