Reviewer's report

Title: Procalcitonin and C-reaction protein in urinary infection position diagnosis

Version: 2 Date: 27 November 2013

Reviewer: Sandrine Leroy

Reviewer's report:

The authors addressed a key-question of easy tools to distinguish acute pyelonephritis from lower UTI.
However, major weaknesses in the study and its reporting had to be improved.

Introduction:
The scientific rational had to be clarified, and more logically explained; the research already done on PCT in pediatric UTI (more than 10 studies…) had to be added.
Please update the references used; ref 8 to 10 can be replaced by the systematic review from Tang, LID, 2007.

Methods:
The methods section should be re-written with clearer paragraphs: study design, inclusion/exclusion criteria, outcome, potential predictive variables, statistical analysis.

Other points:
- Was the study prospective or retrospective? Please clarify.
- Please transfer all results from the methods please (p4, 5) to the results one.
- Why having mixing patients with first and recurrent UTI?
- Can the authors give the Inclusion/exclusion criteria? Did the patient have previously known UT abnormalities?
- When was the early DMSA scan performed in the disease course? Please precise.
- Renal injury grading: please reference to Benador study (Benador, Peidatrics 1998).
- When were PCT and CRP measured?
- Statistical analysis: did the authors check the normality of distributions before using t-test? How did they choose their cut-offs?
- According to the results section, patients underwent late DMSA, VCUG, WBC: please clarify that point, the time of examinations in the methods section.
- Please make clear that acute pyelonephritis is defined by a positive early DMSA scan, whereas lower UTI by a negative one?
According to the results section, there were repeated measurements of PCT? CRP pre and post-treatment: please clarify, and specify which treatment course the patients follow?

Results:
- n=46 is a small sample size.
- Please add a section to describe the general characteristics of the included patients.
- Why calculating correlation coefficient between CRP and PCT?
- Please provide 95% CI of Se, Sp in the text as well as in table 2.
- No clear how the authors calculate correlations presented in table 3: please clarify.

Discussion:
- Please add a discussion on limitations of the present study, as well on comparison of previous studies (summarized on a review paper – Adv Urol, Leroy & Gervaix, 2011).

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Needs some language corrections before being published

**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

No conflict of interest.