Reviewer's report

Title: Lateral insertion is a good prognostic factor after in situ fixation in slipped capital femoral epiphysis

Version: 1  Date: 2 June 2014

Reviewer: Neil Wilson

Reviewer's report:

1. Is the question posed by the authors well defined?
   Yes

2. Are the methods appropriate and well described?
   Yes

3. Are the data sound?
   Major Compulsory Revisions:
   I am unsure on this point. A 'flow chart' of the initial number of hips and patients and steps or exclusions that led to the final numbers being analyzed would go a long way to clarifying this.
   Initially it seems 112 hips / 98 patients were registered. Although the reasons for exclusion are described the numbers given seem to apply to a smaller number 77 hips / 64 patients. To answer the aim of the study to clarify the incidence of progression is unclear if the denominator is not obvious.
   The authors could clarify how they have dealt with bilateral cases. For example, see Park MS, Kim SJ, Chung CY, Choi IH, Lee SH, Lee KM. Statistical consideration for bilateral cases in orthopaedic research. The Journal of bone and joint surgery American volume. 2010 Jul;92(8):1732-1737.

4. Does the manuscript adhere to the relevant standards for reporting and data deposition?
   Major Compulsory Revisions
   For me tabulation of the results would clarify the information the authors wish to convey. This would be better rather than relying on descriptive text alone.
   Of interest would be a clearer comparison of the characteristics of the group of cases with a lateral insertion point versus those with a medial insertion point. The comparability of these two groups is particulary relevant to the conclusions the authors draw I think. Of interest would be the comparison, between the two groups, of the initial degree of slip and also the final position of the screw achieved. I am currently unclear if the observation that lateral insertion points being seemingly better than medial insertion may not be due to some other difference between the groups. For example did cases with a greater degree of
slip have more medial entry points or less effective final screw position in the head? Is the observed progression as an association representative of the more severe cases rather than screw entry point selection?

Major Compulsory Revisions
In the methods the protocol suggests that cases of unstable SCFE would be fixed by two screws, yet in the results the authors explain that whilst 10 cases were identified as unstable there appear to be only six cases with double screws. Do we presume that the remaining 4 unstable SCFE cases were treated with single screw fixation? Did these cases demonstrate progression of PTA?

5. Are the discussion and conclusions well balanced and adequately supported by the data?
Yes.

Minor Essential Revisions
The recommendation that the lateral insertion is preferable since it appears to be more effective would seem valid but to state that it is safe may be better omitted. Larger numbers are usually needed to clarify safety when considering the likelihood of the occurrence of some event that has not been observed; since 31 hips were considered to have lateral points of insertion statements of safety are problematic see references on Hnley’s Rule of three: Eypasch E, Lefering R, Kum CK, Troidl H. Probability of adverse events that have not yet occurred: a statistical reminder. BMJ. 1995 Sep;311(7005):619-620. http://www.ncbi.nlm.nih.gov/pubmed/7663258 and Hanley JA, Lippman-Hand A. If nothing goes wrong, is everything all right? Interpreting zero numerators. JAMA: the journal of the American Medical Association. 1983 Apr;249(13):1743-1745. http://www.ncbi.nlm.nih.gov/pubmed/6827763

Minor Essential Revisions
How much progression of PTA is considered of clinical significance? The range of values seems quite wide. Are they employing over five degrees of progression as relevant clinically, that level being identified in the conclusion.

6. Are limitations of the work clearly stated?
In general, yes.

Minor Essential Revisions
I am unclear when the authors refer to the patient characteristics previously reported as risk factors and include endocrinology disorders but which they did not confirm as significant factors; yet I understood that the authors had excluded endocrine cases in their study.

7. Do the authors clearly acknowledge any work upon which they are building, both published and unpublished?
Yes

8. Do the title and abstract accurately convey what has been found?
Yes
9. Is the writing acceptable?
   Yes

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

**Quality of written English:** Acceptable

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

**Declaration of competing interests:**

I declare that I have no competing interests.