Reviewer's report

Title: Factors affecting aseptic loosening of 4750 total hip arthroplasties: multivariate survival analysis.

Version: 1 Date: 5 February 2007

Reviewer: Richie Gill

Reviewer's report:

General

Summary: The authors have analysed the survival of nearly five thousand primary total hip arthroplasties, and looked in particular for the differences between cemented and uncemented prostheses.

1. Is the question posed by the authors new and well defined?
   In terms of looking at survival of prostheses, this is not a new question, but the authors address some limitations of previous studies and this is a very important question in orthopaedic management of patients.

2. Are the methods appropriate and well described, and are sufficient details provided to replicate the work?
   Yes

3. Are the data sound and well controlled?
   Difficult to assess.

4. Does the manuscript adhere to the relevant standards for reporting and data deposition?
   The results need to be presented in a clearer manner, directing the reader to the most significant findings, at the moment this data is in various tables.

5. Are the discussion and conclusions well balanced and adequately supported by the data?
   Relatively well written, will be easier to follow once results are re-written. Limitations need to be detailed.

6. Do the title and abstract accurately convey what has been found?
   Title is descriptive of subject, not the result. Abstract is disjointed, the results reported in the abstract do not fully connect with the abstract discussion; it needs to be made clear that the uncemented components are higher cost but have lower risk of failure.

7. Is the writing acceptable?
   Mostly, some typographical errors.

--------------------------------------------------------------------------------------------------------

Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

1. Abstract
   Need to make clear that uncemented devices are more expensive than cemented.

2. Results
   Need to be presented in clearer and more complete manner, bring important factors to attention of the reader.

3. Discussion
   A major limitation is that many conclusions are drawn from a relatively small number of failures; this limitation is not discussed. The stem failure rate is 1.8%, and that of the cups is 2.8%. There are a large number of different devices used, more than 20 types of stem and more than 14 types of cup. Failures were also associated with pathology and age; the use of various designs with particular pathology is not described. It may be that a higher proportion of a particular device was used for congenital dysplasia patients than for primary OA; and thus the failure incidence is related to the pathology not the device.
Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

1. Abstract:
   line 1. replace “in” with “with”
   line 2. Spelling mistake “manly” should be “mainly”
   line 3. Missing “The” before “present”.

Last paragraph, “Four were the skilled surgeons.” Sentence is not clear and has poor structure, does it mean that four skilled surgeons performed all surgeries, and some were performed by less skilled surgeons. If the intended meaning is that all surgeries were performed by four skilled surgeons, this should be clearly stated.

Poly is an abbreviation of polyethylene, the full term should be used.

Discretionary Revisions (which the author can choose to ignore)

What next?: Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions.

Level of interest: An article of importance in its field.

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

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:
My institution has received research funding from DuPuy, Stryker and Zimmer; products of these companies are included in the reviewed work.