

## Letter to the Editor

### Early Outcome of TKA with a Medial Pivot Fixed-bearing Prosthesis is Worse than with a PFC Mobile-bearing Prosthesis

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#### To the Editor:

I read with concern the article by Kim et al. [1] on the comparison of short-term outcomes of the PFC rotating platform and the Medial Pivot total knee replacements. Osteoarthritis in the knee must differ considerably in its presentation in the Korean population from that encountered in western society where the need for bilateral total knee replacement at presentation remains the exception rather than the norm, and which may limit general applicability of the findings described by Kim et al. Also, the study population was manipulated as patients with rheumatoid arthritis were excluded; in my view, this subgroup would obtain less favorable results from rotating platforms.

However, numerous errors make interpretation of the data difficult. The authors state they treated 98 patients (198 knees) with bilateral arthritis. Clearly one of these figures is wrong. The authors also state three patients were excluded because they had infection, but the number of patients continuing in the analysis was reduced only to 96. Also, four patients were lost to followup. If the starting number was 98 patients, with reported exclusions only 91 patients were studied, not 92 as stated.

Additional errors occurred in the presentation of the results. The mean preoperative ranges of movement for the two designs were 124° each as displayed in Table 2, but 124° vs 123° in the text. In Table 3, 38 of 92 is 41%, not

63% as written, and 51 of 92 is 55%, not 34% as written. Table 6 has curiously identified equal numbers of patients who received PFC knees, 37 (40%) in each of the available satisfaction ratings giving a total of 148 knees.

Given the limited period between February and April 2004 in which all these operations were performed, it would be helpful to receive confirmation that Dr. Kim did perform all the operations as reported. As the exclusion criteria for the study was infection, additional explanation is required why 12 infected knees (11 Medial Pivot, one PFC) remain in the analysis of the results particularly as dissatisfaction in one group seems to hinge on the patients' experience of infection. As the implants and instruments were not implicated as the source of the infections, it suggests that inexperience with the instrumentation might be relevant. I wonder if Kim et al. could describe their experience using the Medial Pivot replacement before commencing the trial. Furthermore, it would be relevant to know if this problem occurred more frequently in the second side than the first. Additionally, the antibiotic prophylaxis observed in these circumstances is highly relevant.

Although the surgical technique was said to be common for all patients, three separate ways of setting the rotation of the femoral jig were used. The knees were said to be subject to a balancing procedure before implantation of the components. However, in the case of the rotating platforms, "Additional time was spent doing more meticulous ligament balance [1] [sic]". One wonders whether meticulous ligament balancing was not performed for the Medial Pivot knee and why such a meticulous endeavor was not afforded to all total knee replacements. This suggests the surgical technique was quite different between the designs.

The use of two scoring systems to examine outcome is commonplace, but the Hospital for Special Surgery score

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(Re: Kim YH, Yoon SH, Kim JS. Early outcome of TKA with a Medial Pivot fixed-bearing prosthesis is worse than with a PFC mobile-bearing prosthesis. *Clin Orthop Relat Res*. 2008 May 9. [Epub ahead of print])

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was superseded by the AKSS to distinguish function that may depend on extraneous factors from the outcome for the knee. I believe it is pointless to use both scores in the same study because of the overlap in the questions and thresholds.

In the radiographic analysis I wonder if the authors are confident no bias was present as the implants are radiographically different. The kappa score for intraobserver error did not reach the high level one would have anticipated, and I note in the Discussion that the authors acknowledge they did not study interobserver error.

Statistical analysis was performed with analysis of variance but it is unlikely the scores were distributed normally; generally they are skewed. I should have thought that Wilcoxon's matched pairs signed rank test would have been more appropriate at a stated level of significance of  $p < 0.05$ .

Patient dissatisfaction in the Medial Pivot design was skewed by the infected prostheses, and it is not difficult to believe that the presence of recurrent effusions in nine of these patients indicates that the infection actually persists, as might the residual flexion contracture in three knees. When dissatisfaction with the range of movement is considered, this sentiment is expressed by more patients with PFC knees than Medial Pivot knees but this point was not discussed.

In the Discussion, the authors state "We attributed dissatisfaction with the Medial Pivot fixed-bearing prosthesis to a higher incidence of infection and insufficient ROM" [1]. However, the patients' opinions regarding their range of movement recorded in Table 6 does not concur with the authors' assertion.

I note a reply already has been published regarding the letter from Pritchett [3]. In the reply [2], Kim et al. confirm their belief that the poorer Medial Pivot results were related to surgical technique that seems to contradict their manuscript where it is implied the design is the problem.

## References

1. Kim YH, Yoon SH, Kim JS. Early outcome of TKA with a Medial Pivot fixed-bearing prosthesis is worse than with a PFC mobile-bearing prosthesis. *Clin Orthop Relat Res.* 2008 May 9. [Epub ahead of print]
2. Kim YH, Yoon SH, Kim JS. Reply to Letter to the Editor: Early outcome of TKA with a Medial Pivot fixed-bearing prosthesis is worse than with a PFC mobile-bearing prosthesis. *Clin Orthop Relat Res.* 2008 Oct 25. [Epub ahead of print]
3. Pritchett JW. Letter to the Editor: Early outcome of TKA with a Medial Pivot fixed-bearing prosthesis is worse than with a PFC mobile-bearing prosthesis. *Clin Orthop Relat Res.* 2008 Nov 1. [Epub ahead of print]