Reviewer’s report

Title: Consecutive Series of 226 Journey Bicruciate Substituting Total Knee Replacements: Early Complication and Revision Rates over Time

Version: 2
Date: 26 March 2014

Reviewer: Hermes MIOZZARI

Reviewer’s report:

Minor Essential Revisions

ABSTRACT, Page 3

1. “… studying early complication and revision rates in consecutive case series.”
Change: “in a consecutive case series”

2. “Between December 2006 and May 2011, a single surgeon implanted 226 Journey BCS total knee prostheses in 191 patients (124 women/67 men) who were eligible for study.”

Either use TKR or TKA and not total knee prostheses. Since before TKR was chosen, then use TKR in the whole paper

BACKGROUND

3. Page 5: “However, despite its more closely resembling the normal knee than other implants, Journey patients show a kinematic profile different from that of normal knees. Most likely playing a major role in this is the femur being too posterior relative to the tibia [12].

Review the English.

. “Journey patients”: use “patients with a Journey TKR”

. Even the Journey BCS TKR has a different kinematic compared to the normal, non degenerative knee. The “femur too posterior relative to the tibia” is a problem of other design than the Journey BCS TKR, the sentence is misleading.

4. “… Side effects and early complications…”
Which side effects?

METHODS

Page 6:

5. “Journey BCS TKR”
Please complete with (Smith & Nephew, …)
6. What was the diagnosis in the 191 patients? (Primary / secondary OA)
How was the mechanical axis? (how many patients with varus / valgus malalignment)

7. F/U: what kind of imaging was used?
Have subjective/objective scores been used at f/u and before surgery?

Page 7:

8. Surgical technique: please describe the approach used for TKR

9. Prefer “cut” instead of “osteotomy”

Page 8

10. Covariates: why was the BMI not considered?

Page 9:

10. “Two of 191 patients had infections, a rate of 1.1%.” Please correct the sentence.

11. “One patient had an early infection … treated by two arthroscopic debridements without any further treatment steps. The second patient …”
Did these two patients have any antibiotic treatment and how long? How long is the actual f/u for these two patients after revision?

12. Change: “an infection was detected 21 months after surgery…

13. “A failure of proximal plate fixation again needed revision by interlocking plating.”
Change: “Due to failure of the proximal plate fixation, revision surgery by interlocking plating was required”
Did the fx heal, eventually?

14. “In another, obese female patient, …for mechanical reason”
Please revise the English

Page 10

15. “In one right knee a left poly …”
When was it clear that a left poly was inserted in a right knee? Was it detectable on direct postop X-Rays?

16. Midflexion instability. “Nine knees (0.4%) showed a symptomatic midflexion instability …”
How many of these patients had surgery with conventional instrumentation and how many with navigation?
Did the 4 primary cases have conventional instrumentation technique?

Page 11

17. “after a dislocation 22 months, …”
I guess 22 months after index surgery

18. “Both these dislocated knees otherwise show excellent results and have not been further revised”
Change: These last two patients did not require any further revision until now.
How were all these patients with knee dislocation been treated after closed reduction?
“excellent results”: how have this been quantified? The use of no scores has been mentioned in the methods but after many dislocation I would not put “excellent results” in the sentence. I would rather say that the patients were asymptomatic once the TKA reduced, despite instability.

Page 12

19. “Since the complication rate by treatment year suggests a surgical learning curve that was surmounted in the first year, we would expect the overall complication and revision rates to continue tending slightly lower, although the slight elevation of the overall rates brought about by any additional complications attributable to the first-year learning curve currently are partially offset by the low rates of the last year.”
The statement is important but the sentence should be reformulated.

20. “We therefore believe the complication and revision rates we observed for the Journey prosthesis reflect sufficient surgical experience to reliably indicate these rates are higher than those observed for other established knee systems”
The statement should be reformulated

Page 13

21. On page 11 it was stated that “Increased midflexion instability was observed from the 50th TKR on”
Is there any possible explanation why this is it?

Page 14

22. “This effect would cause too little internal rotation of the femur.”
The sentence is unclear: what is the “too” for?

23. “If the anterior and posterior cuts are performed parallel to the tibial cut – as was done in all 226 knees – the femoral cut would be too extended on the lateral side and lead to a less pronounced external rotation of the femoral component.”
Sentence unclear: what does exactly mean the “femoral cut would be too extended on the lateral side”?

24. “In a guided motion knee such as the Journey BCS, this would lead to an exaggerated lateral roll back and forward. Combined with a smaller post with rounded tip, this could lead to dislocation.”

In the results it is stated that not all TKR with dislocation had a femoral internal malrotation. What do the author think could else explain the dislocation cases? Is ROM for these TKR known? High flexion?

25. “Luycks et al observed friction of the It band …. The major revision rate …”

I would rather mention the overall revision rates and then, when mentioning the complications observed talking about friction of the IT band.

Was there any particular configuration along with the IT band friction syndrome? Laxity? How do the authors explain this?

26. Biconvex patella button: is there any explanation why this failed?

Page 15

27. How long was the f/u for surgeries done in 2011?

28. Conventional versus navigated implantation

It is unclear wether navigation will help or not in decreasing the rate of complications and revision surgeries when using the Journey TKR; the f/u of the navigation group is too short.

Theoretically, it would have been interesting to see if this makes any difference, but the high number of complications found makes a longer f/u a nonsense.

- Discretionary Revisions

It would be interesting to have subjective and objective outcome scores as well as knowledge of the rate of ROM and the mechanical axis at f/u.

The BMI could have been an important covariate to study

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

**Declaration of competing interests:**

'I declare that I have no competing interests'