

ANSWERING REVIEWERS



March 25, 2014

Dear Editor,

Please find enclosed the edited manuscript in Word format (file name: 8489-edited).

Title: Anterior Knee Pain after a Total Knee Arthroplasty. What can cause this pain?

Author: Stéfanus Jacob Martinus Breugem¹, Daniël Haverkamp²

Name of Journal: *World Journal of Orthopedics*

ESPS Manuscript NO: 8489

The manuscript has been improved according to the suggestions of reviewers:

1 Format has been updated

2 Revision has been made according to the suggestions of the reviewer

1. **reviewer: 02705995:** I have read carefully through the manuscript which contains some practically interesting new ideas about the total knee arthroplasty. The paper is concized, well organized and clearly meets the criteria for publication in the World Journal of Orthopedics (with minor language polishing).

answers to reviewer:

Thank you for reviewing our paper, the language polishing was done. The manuscript was reviewed by a native speaker.

2. **reviewer: 02695012:** Slightly imperfect use of English language. No real conclusion. A cleared description of ho to reduce the chances of AKP would be useful. A discussion of predictive factors (age, gender, pre op deformity, PS vs CR, resurfacing or not). Medical management of AKP would be relevant - you have discussed he nociceptive pathway but not discussed how this can be altered eg pregabilin etc. A bit more work could turn this from average to very good.

2. *answers to reviewer:*

Thank you for reviewing our paper, the language polishing was done. The manuscript was reviewed by a native speaker.

We agree that a focusing more on how to avoid AKP could make the manuscript more valuable to the reader. Therefore we made some major changes to the manuscript. In the current version we included the predictive factors, a more complete list of reasons for AKP, different figures and a more focused conclusion.

The medical options to treat these pain are indeed very interesting, however that is such a wide topic that it enough for a complete new review. Therefore we chose deliberately to leave the medical management out of this review, to keep it pure and informative.

3. reviewer: 02702256

The topic of this review is very interesting and of great clinical significance. Anterior knee pain continues to challenge orthopaedic surgeons both in patients with and without total knee replacement. The authors bring out in great detail the theoretical background of mechanisms of pain, which is rarely combined with the clinical aspects. The section on clinical implications reviews the literature on knee arthroplasty with special reference to implant design differences and patellar resurfacing. Both of these topics are longstanding subjects of debate, and the present review is not able to raise any significant new points to this. There clearly is a gap in present knowledge between the theoretical mechanisms of anterior knee pain and the clinical knowledge on its manifestations and treatment. I find the manuscript interesting. The topic is clinically highly important, although there is scarcity of good scientific studies on which treatment recommendations could be based on. I have a few requests for the authors, which in my opinion would further improve the usefulness of the manuscript: 1) The significance of predominantly patellofemoral osteoarthritis as a significant cause of knee symptoms and functional impairment has been recently emphasized in the literature. Can the authors find any studies on which they could discuss the management of this clinical problem? 2) Is it possible for the authors to conclude their review with a proposed algorithm of management of treatment of a patient with significant AKP after a total knee replacement. What are the beneficial investigations? What are the indications for arthroscopy, if any? Who is the ideal candidate for secondary patellar resurfacing? 3) A specific request: The sentence on lines 221-223 is incomprehensible to me. Could you please rewrite.

answers to reviewer:

Thank you for reviewing our paper and giving your advice.

Your comment on the resurfacing and the implant design are thoroughly changed and figures are included and case examples included.

The significance of predominantly patellofemoral osteoarthritis as a significant cause of knee symptoms and functional impairment has been recently emphasized in the literature. Can the authors find any studies on which they could discuss the management of this clinical problem?

*Different studies are included; probably the most important is the study by Van Jonbergen on the determinants of AKP after TKA (**van Jonbergen HP**, Reuver JM, Mutsaerts EL, Poolman RW. Determinants of anterior knee pain following total knee replacement: a systematic review. *Knee surgery, sports traumatology, arthroscopy : official journal of the ESSKA* 2014;22:478-49) others include (**Beard DJ**, Pandit H, Gill HS, Hollinghurst D, Dodd CA, Murray DW. The influence of the presence and severity of pre-existing patellofemoral degenerative changes on the outcome of the Oxford medial unicompartmental knee replacement. *The Journal of bone and joint surgery. British volume* 2007;89:1597-1601 and **Beard DJ**, Pandit H, Ostlere S, Jenkins C, Dodd CA, Murray DW. Pre-operative clinical and radiological assessment of the patellofemoral joint in unicompartmental knee replacement and its influence on outcome. *The Journal of bone and joint surgery. British volume* 2007;89:1602-1607). These references with comments are included in the current version of the manuscript.*

Is it possible for the authors to conclude their review with a proposed algorithm of management of treatment of a patient with significant AKP after a total knee replacement. What are the beneficial investigations? What are the indications for arthroscopy, if any? Who is the ideal candidate for secondary patellar resurfacing?

Though we do agree that it would be good to have an algorithm, this review will not focus on treatment options, as these are areas for separate review. This review will only focus on what causes this pain in the anterior part of the knee. Besides that the evidence for such an algorithm is scarce and will be mainly level 5.

The sentence on lines 221-223 is incomprehensible to me. Could you please rewrite.

We rewrote this section to make it comprehensible.

The authors have written an interesting editorial. Unfortunately, there seems to be little definitive information on approaches to reduce AKP following TKA. Any more specific recommendations the authors can provide would be helpful for readers. Line 67: Specify why AKP is not expected to originate from the CNS. Line 97: Specify the three stimuli for slow pain. Lines 97, 100: Specify the meaning of A and C fibers. Line 135: internal- external and varies-valves rotation is also possible. Line 146: Please use a more anatomical description than up and down. Lines 221-222: The phrase on these lines does not make any sense. Lines 240-242: Can the authors speculate why mobile bearing TKA's seem to make a difference.

answers to reviewer:

Thank you for reviewing our paper and giving your advice.

Line 67: Specify why AKP is not expected to originate from the CNS.

We changed this sentence to make it more clear to our readers:

see lines 112: This form of pain typically originates in the peripheral nervous system (PNS) [27].

Line 97: Specify the three stimuli for slow pain.

Changed to: lines 138

Fast pain can be triggered by mechanical and thermal stimuli, but slow pain can be caused by mechanical and thermal stimuli and by chemical agents.

Lines 97, 100: Specify the meaning of A and C fibers.

Included lines 141 and 143

A fibres (also called A delta fibres, they are myelinated)

C fibres (unmyelinated)

Line 135: internal- external and varies-valves rotation is also possible. Line 146: Please use a more anatomical description than up and down.

Up and down is removed: lines 188:

The patella allows for multidirectional movement, especially cranial and caudal, but it also tilts and even rotates.

Lines 221-222: The phrase on these lines does not make any sense.

We made changes to make sure it makes sense.

Lines 240-242: Can the authors speculate why mobile bearing TKA's seem to make a difference.

The reason why the mobile bearing TKA seems to make a difference in AKP, could be due to the femur component being highly congruent to the PE bearing this in combination with the self alignment ability of the PE bearing and the fixed tibial base plate, in a knee that is well balanced in flexion and extension thus unloading the PFJ.

Thank you again for publishing our manuscript in the *World Journal of Orthopedics*

Sincerely yours,

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On behalf of: D Haverkamp, MD PhD