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Title: Surgical tourniquet use in total knee replacement surgery: a survey of BASK members

Authors: Gibbs V, Price A and Wall PDH on behalf of the SAFE-TKR Study Group

Introduction: Traditionally, a surgical tourniquet is used during total knee replacement (TKR) surgery to help provide a bloodless field, and some surgeons believe this improves the quality of component cementation.[1] In 2003 over 93% of TKRs reported in the National Joint Registry were performed with a tourniquet.[2] However, now, evidence is emerging that using a tourniquet increases the risk of post-operative venous thromboembolism and is associated with higher levels of post-operative pain.[3] In addition, echogenic material, suggestive of emboli has been observed in the brain following surgical tourniquet deflation in total knee replacement surgery. It is thought that this may occur despite the absence of a patent foramen ovale, likely through pulmonary shunts.[4] The aim of this study was to capture contemporary surgical practice and establish the extent to which BASK members undertake total knee replacement surgery with the aid of a tourniquet. We also aimed to establish those members who would consider changing their practice as part of a research study to evaluate the benefits and risks of tourniquets.

Methods: The survey was e-mailed to the 547 consultant members of BASK using SurveyMonkey on 31st July 2015 and a reminder was sent to 228 non-responders on 14th August 2015. The survey was closed on 13th September 2015. The data was analysed in Microsoft Excel and simple summary statistics prepared.

Results: Out of 547 requests for a response 18 were bounced, 14 opted out and 228 responded yielding a response rate of 44%. The responses with percentages for each question are shown in

Figure 1 and 2.

Figure 2: Questions asked to BASK members about tourniquet use and their responses

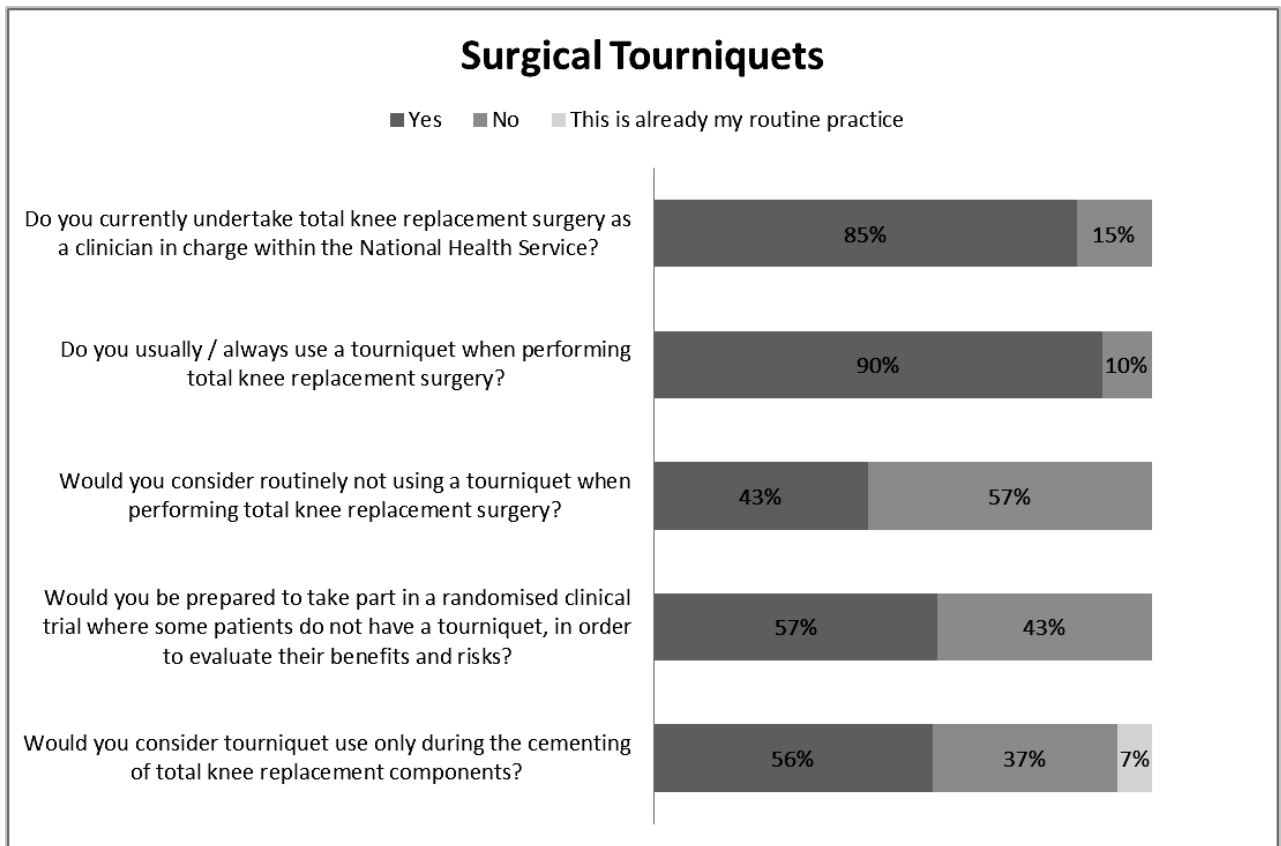
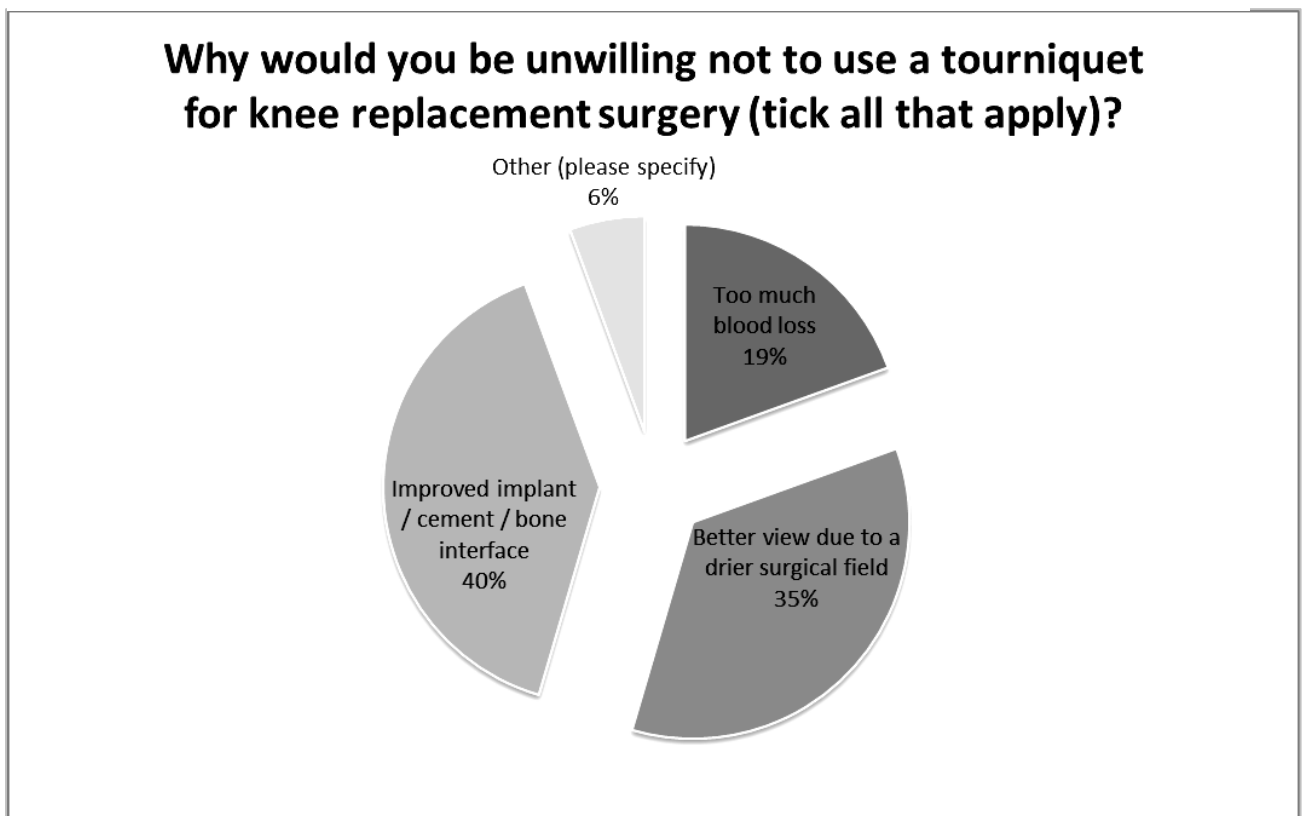


Figure 1: Reasons given by BASK members for being unwilling to not use a tourniquet during knee replacement surgery



Alternatives to the options given to members were explored further in the 'other' section. Three participants suggested that performing a total knee replacement without a tourniquet would increase their operative time. Additional specified reasons included increased blood spray to staff and little procedural experience without using a surgical tourniquet. One participant commented they would consider not using a surgical tourniquet only for uncemented implants.

Summary

The majority of BASK members who responded to our survey use a tourniquet during total knee replacement. Just over half of surgeons indicated they would be unwilling to change their routine clinical practice of using a tourniquet largely because of concerns about the effects on quality of cementation and surgical field of view. Interestingly, however, over half of surgeons indicated they would be prepared to take part in a randomised controlled trial to evaluate the benefits and risks of tourniquets further. The response rate of 44% for this survey mean these findings may not represent the majority view of the BASK membership.

Acknowledgements

Andrew Sprowson who was part of the study team at the inception of this work died tragically on 13 March 2015. Andrew was an academic orthopaedic surgeon who was dedicated to improving evidence-based care in his field. He was an exceptionally enthusiastic researcher and surgeon and will be sadly missed by both his academic and clinical colleagues.

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<http://www.isrctn.com/ISRCTN20873088?q=&filters=conditionCategory:Musculoskeletal%20Diseases&sort=&offset=5&totalResults=1097&page=1&pageSize=10&searchType=basic-search>

Disclaimer

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