Evidence is Not Sufficient for Selecting the Subvastus Approach in Total Knee Arthroplasty

To the Editor:

We read the article “Subvastus and Medial Parapatellar Approaches in TKA: Comparison of Functional Results”1 in the June 2011 issue of Orthopedics with interest. The authors reported that patients in the subvastus group achieved better functional results and had less pain at 12 days postoperatively than patients in the medial parapatellar group. The authors concluded that the subvastus approach is an alternative to the standard medial parapatellar approach in total knee arthroplasty (TKA). In 2010, a systematic review by Bourke et al2 also compared these 2 approaches for TKA. The systematic review included 5 studies with 284 TKAs (147 subvastus vs 137 medial parapatellar). However, the systematic review reported a different conclusion: insufficient evidence existed to demonstrate a clinically or statistically significant difference between the medial parapatellar and subvastus approaches to TKA across all outcomes.

We also searched the PubMed database and Institute for Scientific Information Web of Knowledge Web site in an attempt to update the systematic review about this topic. Five studies were included in the systematic review published between 1993 and 2004. After 2004, another 5 studies compared the subvastus and medial parapatellar approaches, which were not included in the systematic review.1,3-6 Because different endpoints and evaluation criteria for endpoints were used, the systematic review could not use the meta-analysis for data combination. For the same reason, we also cannot use the meta-analysis.

The 5 studies after 2004 comparing the subvastus and medial parapatellar approaches reported different conclusions. Boerger et al3 reported that patients in the mini-subvastus group lost an average of 100 mL less blood and had better pain scores on postoperative day 1 (mean visual analog pain scale, 2.4 vs 3.89, respectively); reached 90° of knee flexion sooner (2.8 vs 4.5 days, respectively); had an active straight-leg raise sooner (3.2 vs 4.1 days, respectively); and had slightly better average flexion at 30, 60, and 90 days (100°, 110°, and 112° vs 94°, 106°, and 109°, respectively). The authors found that the mini-subvastus approach offered early but short-lived benefits for patients at the expense of a longer operative time and a higher risk of complications.3 Jung et al4 reported that patients who underwent the modified subvastus approach performed active straight-leg raise sooner (mean, 0.5 days) than patients undergoing the medial parapatellar approach (mean, 2.2 days) and had better knee flexion at postoperative day 10 compared with the medial parapatellar approach group; the modified subvastus approach is recommended in primary TKA. Sastre et al5 reported that the subvastus group showed significantly better range of motion and quadriceps extensor force when discharged and a distinct improvement in extensor force according to the Barthel Index 1 month postoperatively. No significant difference existed between the 2 groups at 12-month follow-up. The authors found that the subvastus approach offered superior short-term clinical and functional results.6 Bridgman et al6 reported that range of motion and Knee Society global, knee, and pain scores were significantly better in the subvastus group at 1-week follow-up; the Western Ontario and McMaster Universities Arthritis Index global and pain scores, Short Form-36 physical function and role–physical scores, and EuroQol usefulness and pain scores were significantly better in the subvastus group at 1-year follow-up; and the subvastus approach to TKA was more effective than a medial parapatellar approach 1 week and 1 year postoperatively.

This article was a well-designed prospective randomized controlled study.1 According to the Oxford Evidence-based Medicine Centre,7 the level of evidence is Ib. However, according to The CONSORT statement,8 some shortcomings in the research method were that the study included no sample size calculation, no random allocation sequence implement, no blind assessment of the outcomes, and no intention-to-treat analysis. These shortcomings may have resulted in the results bias.

Evidence is insufficient for selecting the subvastus approach in TKA. New randomized, controlled multicenter trials should be conducted for the subvastus and medial parapatellar approaches in TKA.

REFERENCES


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Reply:
When knee implants achieve a comparable level, the operative approach has a significant effect on clinical outcome. The result also depends on the clinical and functional status of the knee and the surgeon’s experience. The study conducted by our team was a prospective, randomized, controlled study. Each study method has some limitations, such as lack of blindness resulting from different surgical techniques.

In the current study, better clinical results were achieved in the Knee Society Score scale up to 6 weeks and functional for 12 weeks with access through the subvastus approach. We claim that the subvastus approach is favorable to the medial parapatellar approach. The subvastus approach is dedicated to experienced surgeons and depends on surgical technique. The objective value of this approach will be better determined with a larger study group; therefore, we plan to continue to work on this problem.

We agree that further research is needed in a uniform multicenter protocol comparing these 2 approaches. Thank you for your interest and exact assessment of our publication. We agree that further multicenter randomized studies are needed to assess the value of the subvastus approach.

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Musculoskeletal Clinical and Cost-effectiveness Outcome Study Group

To the Editor:
Musculoskeletal diseases are reported to be the most common cause of chronic disability worldwide, and their importance with respect to morbidity and mortality is well-recognized. An estimated 25% increase in the global burden of musculoskeletal diseases has occurred over the past decade and is expected to increase in the future. The authors, who represent the Musculoskeletal Clinical and Cost-effectiveness Outcome Study Group, specifically aim to further address the pooled outcome and cost-effectiveness in arthroplasty and sports medicine. The Musculoskeletal Clinical and Cost-effectiveness Outcome Study Group has 2 major aims in assisting musculoskeletal surgeons in decision making by (1) evaluating the cost-effectiveness of new therapies and treatment options, including cost-minimization analysis (ie, 2 therapies assumed equal and 1 cancelled out), performing cost-effectiveness analyses (using any clinical outcome), performing cost-usage analyses (using quality-adjusted life years), and performing cost-benefit analyses (using outcomes values); and (2) by analyzing the pooled outcome of new therapies and treatment options in musculoskeletal surgery using systematic reviews and meta-analyses of published level I and II studies in the literature.

With the current financial burden of musculoskeletal diseases, surgeons should be able to choose treatment options after considering the optimal outcome and cost-effectiveness of the diseases. The Musculoskeletal Clinical and Cost-effectiveness Outcome Study Group will provide the scientific background for these decisions, with a focus on arthroplasty and sports medicine.

REFERENCES

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