Comments on Bonutti PM et al.: Minimally invasive total knee arthroplasty using the contralateral knee as a control group: a case-control study

Daniel Hernandez-Vaquero

Received: 19 May 2010 / Accepted: 15 June 2010 / Published online: 9 July 2010
© Springer-Verlag 2010

Dear Editor,

We read with interest the article by Bonutti et al. [1]. The authors believe that the results demonstrate superior outcomes in patients who had a total knee arthroplasty (TKA) with a minimal invasive surgery (MIS) approach compared to a standard medial parapatellar approach using the contralateral knee as a control group.

This work shows the results of a MIS knee dedicated centre (with experience of 3,000 procedures of this technique). In our opinion these results could not be repeated in a general orthopaedic unit.

First, we noticed that the surgical mean time is close to one hour, but other studies [2, 3] show a longer time to perform the MIS technique. The authors recommended this technique on the basis of the Knee Society system (KSS) score and the improvement of range of motion (ROM), but after a year of follow-up the differences are minimal or nonexistent in KSS and only 4° of difference in ROM.

In a prospective and randomised study [4] that compares both techniques via functional scales, subjective impressions and opinions on quality of life, we have found that, although MIS has some advantages immediately postoperative (patient's well-being, hospital stay, analgesic use, etc.), the results are similar at six months, both in objective questionnaire scores (KSS) as in quality of life scored with a generic short-form health questionnaire (SF-12). At six

months of follow-up, the MIS group scored a mean of 43.9 (standard deviation [SD] 10.5) in the physical subscale of the SF-12, whereas the traditional technique group scored a mean of 44.9 (SD 97.3), with no significant differences. The same happened with the mental subscales, i.e. 45.8 (SD 13.4) for the MIS group and 50.1 (SD 11.4) for the conventional technique group. KSS scores were 163.4 (SD 31.4) for the MIS group and 162.6 (SD 21.4) for the standard technique group without statistically significant differences. These results are concordant with other studies [5].

A recent systematic literature search of randomised controlled trials comparing minimally invasive and standard approaches in TKA [6] (meta-analysis of 13 trials published from 2007 to 2009) show that the mean KSS were better after MIS than after the standard procedure at six and 12 weeks postoperatively, but not after six months. Improvement in ROM occurred earlier in the MIS group six days after TKA, but later improvements are not clearly documented. These authors identified no differences between minimally invasive and standard approaches regarding the short-term overall complications and alignment of femoral and tibial components. However, wound healing problems and infections occurred more frequently in the MIS group.

We believe that the presumed advantages of the MIS technique in knee arthroplasties disappear in medium-term. We have doubts about the usefulness of this technique in the clinical practice of an orthopaedic surgery unit, knowing the long learning curve that it requires [2]. This could be different in centres with special dedication to MIS surgery, such as that of the authors, where this technique may be a clinical alternative or a patient request.

D. Hernandez-Vaquero (✉)
School of Medicine, University of Oviedo,
Oviedo, Spain
e-mail: dhernandezv@meditex.es

References

1. Bonutti PM, Zywiell MG, Seyler TM, Lee SY, McGrath MS, Marker DR, Mont MA (2010) Minimally invasive total knee arthroplasty using the contralateral knee as a control group: a case-control study. *Int Orthop* 34:491–495
2. King J, Stamper DL, Schaad DC, Leopold SS (2007) Minimally invasive total knee arthroplasty compared with traditional total knee arthroplasty assessment of the learning curve and the postoperative recuperative period. *J Bone Joint Surg Am* 89:1497–1503
3. Tashiro Y, Miura H, Matsuda S, Okazaki K, Iwamoto Y (2007) Minimally invasive versus standard approach in total knee arthroplasty. *Clin Orthop Relat Res* 463:144–150
4. Hernandez-Vaquero D, Noriega-Fernandez A, Suarez-Vazquez A (2010) Total knee arthroplasties performed with a mini-incision or a standard incision. Similar results at six months follow-up. *BMC Musculoskelet Disord* 11:27
5. McAllister AC, Stepanian JD (2008) The impact of minimally invasive surgical techniques on early range of motion after primary total knee arthroplasty. *J Arthroplasty* 23:10–18
6. Cheng T, Liu T, Zhang G, Peng X, Zhang X (2010) Does minimally invasive surgery improve short-term recovery in total knee arthroplasty? *Clin Orthop Relat Res* 468:1635–1648