

Cost Effectiveness Analysis of Knee Osteoarthritis Treatment

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Abstract

Introduction: Resource allocation is challenging in times of economic restraint and cannot be based only on clinical judgments, but must also take into account economic aspects. A method for assessing patient outcome is to estimate the quality-adjusted life years (QALYs). These will quantify the benefit gained by a certain treatment by measuring the change in health-related quality of life with time. This study will assess the cost effectiveness of conservative management, consisting in rehabilitation program, and compare the cost effectiveness of total knee arthroplasty when implanted to a non operated arthritic knee with cost effectiveness of the same procedure following high tibial osteotomy.

Materials and methods: This study reviewed 30 patients who were treated for knee osteoarthritis with rehabilitation care (group 1-G1), 30 patients who underwent unilateral TKA to an non-operated knee (group 2-G2) and 30 patients who underwent TKA following HTO for degenerative arthritis of the knee (group 3-G3). The economical endpoint were the total direct costs (Euro), based on DRG rates for procedures. The cost effectiveness analysis was assessed by the ratio between direct costs as assessed by the economical endpoint and the associated patient benefit as assessed by the clinical endpoint (€/QALY).

Results: No statistically significant differences was found between G2 and G3 regarding clinical or radiological outcomes of this study. Yet the patients who did not previously suffered a HTO procedure showed lower mean values of KSS, ROM and femurotibial angle. A significant benefit is observed for G2 and G3 towards G1 patients. Neither a clinically relevant nor a statistically significant association between groups is observed in G2 and G3 (median benefit estimates 2.5 versus 2.6 QALYs). Median benefit estimate for patients who did not previously suffered a HTO procedure was though smaller then benefit for those who did. A median cost effectiveness ratio of 1800 € / QALY (450 – 2000 € /QALY) was found based on the EuroQuol scores for G1; 1268 € / QALY (720 – 2160 € /QALY), for G2, and 1975 € / QALY (720 – 2160 € /QALY) for G3.

Discussion: Regarding surgical treatment, the results showed a statistically significant better cost / benefit relation for patients from G2 ($p<0,001$). Conservative management for knee OA is neither clinically effective for pain or disease progression nor cost effective, when applied for late stages of OA.

Conclusion: We report the lowest cost per QALY in the literature for TKA. If financial constraints is a cause for rationalizing the medical services, careful patient selection to optimise the clinical and economical aspects of procedures may help to improve further the cost-effectiveness of these interventions.

Key words: high tibial osteotomy; total knee arthroplasty, cost effectiveness

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