Easing the Burden for Joint Replacement Wait Times: The Role of the Expanded Practice Physiotherapist

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Abstract

There is a critical shortage of orthopedic surgeons in Canada today due to a decreasing number of surgeons practising here and the increased demand for their services from a population with record-high rates of osteoarthritis and obesity. A method of managing the increased demand for total joint replacement was implemented and evaluated. A physiotherapist and orthopedic surgeons performed assessments on patients referred for surgery and found that 34% did not require surgery and that all patients required appropriate conservative management. This has led to the development and implementation of a model of care that not only meets orthopedic demands but improves treatment options for orthopedic patients.

There is a critical shortage of orthopedic surgeons in Canada today (Comeau 2004; Shipton et al. 2003). It has been reported that the median wait time from referral to surgery increased by 65% in the decade between 1993 and 2003, and that owing to the aging of orthopedic surgeons and the rate of immigration of Canadian-trained orthopedic surgery graduates, there is a net decrease annually in the number of orthopedic surgeons practising in Canada (Comeau 2004). Additionally, in Ontario, the number of orthopedic surgeons is two per 100,000 population (Shipton et al. 2003), which falls desperately short of the calculated requirement of six per 100,000 population (Lee et al. 1998). This shortage is expected to get worse due to increasing demands for orthopedic services by the aging population (Shipton et al. 2003) and the increase in osteoarthritis and obesity in the population in general (Fautrel et al. 2005).

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One area that has been particularly overburdened is that of total joint replacements. Over the past eight years, total hip replacement (THR) and total knee replacement (TKR) surgeries have increased by 54% among Canadians (Canadian Institute for Health Information 2006). The increasing demand for total joint replacement continues to exceed the available resources, which can increase wait times for both orthopedic consultations and joint replacement surgery (Hudson 2006). There is a significant negative impact of long wait times for surgery on patients' quality of life and self-reported physical function (Ackerman et al. 2005; Croft et al. 2002; Derrett et al. 1999). In addition,

the economic cost to the healthcare system for the care of those awaiting surgery is significant (Fielden et al. 2005).

One potential solution to the problem is to have non-physician healthcare providers do the screening of patients referred to orthopedics, thereby allowing surgeons the time to perform more surgery (Cooper 2001). This model of care uses another healthcare professional to screen and manage those patients who are appropriate for conservative treatment. This can decrease the wait for orthopedic care by lessening the number of patients that the surgeons must screen, so that only those who require surgery will be seen by the surgeons. These other professionals would work collaboratively with the surgeons to provide the necessary conservative management for the patients, whether the patients required surgery or not. This could ultimately provide a greater number of care options for the patients (Cooper 2001; Jibuike et al. 2003). The potential impacts of this model of care in orthopedics are a reduction in the cost of healthcare (Cooper, 2001), improved management strategies for the orthopedic patient (Jibuike et al. 2003), resulting improved patient satisfaction with care (Derengowski et al. 2000; van Soeren and Micevski 2001) and improved surgeon productivity and satisfaction with the work environment (Carr et al. 2002; MacDonald and Katz 2002; Rodysill 2003).

In the publicly funded system, the most obvious choice for collaborative care management of THR and TKR patients is the physiotherapist because physiotherapists are experts in the conservative management of musculoskeletal impairments (College of Physiotherapists of Ontario 2006). The model of care in which a physiotherapist assesses, triages and manages orthopedic patients has been successfully implemented in other countries (Gardiner and Wagstaff 2001; Hattam and Smeatham 1999; Jibuike et al. 2003). However, what remains unknown is the extent to which physiotherapists and surgeons will make similar diagnoses and recommend similar courses of action for preoperative patients, and if this model is appropriate for the Canadian healthcare system.

The purpose of this study was to examine the correlation of preoperative assessments done by a physiotherapist and an orthopedic surgeon, in terms of determining appropriateness of and priority for THR or TKR surgery. In addition, the conservative treatment options offered to the patient by both the physiotherapist and the surgeon were examined. This information is necessary to determine if physiotherapists can fulfill this orthopedic screening role in Canada. Funding for this study was obtained from the Ontario Ministry of Health and Long-Term Care.

Methods

In this study, patients who had been referred to orthopedics at the Hotel Dieu Hospital, a tertiary care academic health science centre in Kingston, Ontario, for THR or TKR surgery were assessed first by a physiotherapist and then by an orthopedic surgeon. Both the physiotherapist and the surgeon determined if a patient was a surgical candidate; if so, the urgency for surgery was rated using the Western Canada Wait List Hip and Knee Prioritization Tool (WCWL-HKPT) (De et al. 2007). In addition, they completed a checklist indicating their recommendations for the patient. The recommendations included education in an arthritis education program, further diagnostic testing, surgery, medications, referral to a dietitian, referral to psychiatry and referral for conservative management. They were not limited in the number of treatment recommendations they could make. Only once they had each completed their assessments and surgical or treatment recommendations did they discuss the patient and develop a plan.

Patients were also asked to fill out the Western Ontario and McMaster Universities' Osteoarthritis Index (WOMAC) to determine their perception of their level of disability (Stratford et al. 2007) prior to their assessment, and a satisfaction survey pertaining to both the surgeons and the physiotherapist following their assessment.

The Western Canada Wait List Hip and Knee Prioritization Tool

WCWL-HKPT uses a score out of 100, with higher being worse, to determine a patient's surgical priority. It is filled out by the evaluator and asks questions about pain with movement, functional ability in activities of daily living, level of independence and clinical findings on physical examination and radiographs. A score of 0–30 indicates a low priority with an Urgency Rating of I; such a case requires surgery within five months. A score of 31–75 indicates Urgency II and requires surgery within three months. Finally, 76–100 is Urgency III, indicating the highest priority and a surgical need within one month (Hadorn 2003).

The Western Ontario and McMaster Universities' Osteoarthritis Index

WOMAC is a self-administered, multi-dimensional, disease-specific questionnaire. It has subscales of pain, stiffness and physical function and uses a five-point Likert scale to grade the questions. The score is converted to a score out of 100, with a higher score indicating better function. By its rating scale, Priority I indicates the highest priority, with a WOMAC score of <10. Such a case would require surgery immediately. A score of up to 30 indicates Priority II and a surgical time of within three months. A score of >30 indicates Priority III, which involves someone who would require surgery within six months (Stratford et al. 2007).

Statistical Analysis

Statistics were entered into an Excel spread sheet for the calculations of demographics and prioritization correlations. The recommendations were entered into a matrix manually to

generate the kappa statistic (κ), which is a chance-corrected measure of correlation.

Results

Demographics

Forty subjects were recruited into the study and were assessed in the outpatient orthopedic clinic by a physiotherapist before they were assessed by a surgeon. At the end of the study, there were useable data for 38 subjects. Of these, 16 had been referred by their family physician for their hip, 21 for their knee and one for both hip and knee.

Surgical Need

Of the 38 subjects, 13 (34%) were deemed non-surgical by both the orthopedic surgeon and the physiotherapist. There was 100% agreement on the surgical versus non-surgical determination between the two healthcare professionals.

Surgical Prioritization

Of the 25 subjects who did require surgery, the WCWL-HKPT mean score from the orthopedic surgeons was 30.4 (± 19.3) out of 100, and from the physiotherapist was 41.6 (± 17.9) out of 100. The orthopedic surgeons and the physiotherapist agreed on the WCWL-HKPT prioritization (I–III) in 16 (64%) of the cases. In the other nine (36%) cases, the physiotherapist rated the subjects as having a higher surgical priority than the surgeons did.

Subjects' Perceptions of Their Need for Surgery

We compared patients' WOMAC scores with the health professionals' WCWL-HKPT scores in order to compare the subjects' perceptions of their own level of disability and prioritization for surgery with those of the health professionals. The subjects' ratings were compared with the surgeons' and physiotherapist's ratings separately. Only 23 subjects had completed the WOMAC properly, so only these data were used. The orthopedic surgeons and the subjects agreed in 18 of 23 (78%) cases; in one case, the surgeon rated the subject as a lower priority, and in the four remaining cases, the surgeons rated them a higher priority. However, the physiotherapist agreed with the subjects in only 12 of 23 (52%) cases. In 10 of the 11 cases of disagreement, the physiotherapist rated the subject a more urgent priority than the subject did; in one case, the physiotherapist rated the subject a lower priority.

Treatment Recommendations

For treatment recommendations, the surgeons made 40 recommendations for the 38 patients, while the physiotherapist made 82. They agreed on 31 of the recommendations (κ = 67%). The physiotherapist recommended education or conservative management for 37 of 38 (97%) subjects, while the surgeons recommended education or conservative treatment for six of 38 (16%) of the subjects. The surgeons recommended surgery or medication in 24 of 25 (96%) possible surgical cases; so did the physiotherapist. The difference in total recommendations may be because if the surgeons recommended surgery, they did not tend to recommend any other treatment options, but the physiotherapist still recommended conservative treatment options in the interim until the patient received surgery.

Subject Satisfaction

In all cases the subjects were satisfied with both the physiotherapist's and the orthopedic surgeons' assessments. They felt that they received valuable information from both professionals, and they were satisfied or very satisfied with all aspects of their visit. The only variable that rated lower was the wait to be seen once they arrived at the clinic. However, the booking is set up so that a number of patients are booked at the same time – so waiting in these clinics is inevitable.

All of those patients who were surgical candidates were identified appropriately by the physiotherapist and would therefore have been referred to a surgeon for confirmation and surgical prioritization.

Discussion

From these results, it can be seen that only 66% of the people referred to the orthopedic surgeons actually required surgery. The other 34% were correctly identified by the physiotherapist; so, had the physiotherapist been screening patients for the surgeons, all those who were surgical candidates would have seen a surgeon. In terms of surgical prioritization, the physiotherapist tended to rate the subjects as a higher surgical priority than did the surgeons. However, it is presumably a surgeon who would decide on surgical prioritization anyway, and it is preferable that the physiotherapist be more cautious than less. The important issue is that all of those patients who were surgical candidates were identified appropriately by the physiotherapist and would therefore have been referred to a surgeon for confirmation and surgical prioritization.

Interestingly, the subjects rated themselves the same as the surgeons did in terms of surgical prioritization. Once again, the physiotherapist was more cautious or rated the subjects as higher priority than the subjects themselves did. Since the requirement for an elective surgery, such as THR and TKR, is based upon the subjects' perceived level of disability, it is not surprising that the subject and the surgeon rated the surgical prioritization the

same. The surgeons listen to patients when determining their surgical prioritization, and those who have greater disruption to their quality of life will receive surgery in a more expeditious manner.

The physiotherapist made more recommendations for conservative treatment than did the surgeon. In large part, this was due to the fact that if the surgeons recommended surgery, they did not tend to recommend any other form of treatment, whereas the physiotherapist recommended education and exercise even if subjects were surgical candidates. Studies have shown that improved fitness and quality of life prior to joint replacement surgery can lead to improved post-operative outcomes, including cardiovascular fitness and perceived disability (Garbuz et al. 2006; Ries et al. 1996). This suggests that, in this study, the subjects would have had a value added by being assessed by the physiotherapist: firstly, those who required surgery would receive appropriate conservative presurgical interventions that could potentially improve their post-operative outcomes; and, secondly, those who did not require surgery or medical intervention would still receive the appropriate conservative management options.

The results of this study also demonstrate that subjects are equally satisfied with seeing a physiotherapist or an orthopedic surgeon for a consultation in outpatient orthopedic clinics.

Conclusions

This study demonstrates that a physiotherapist is the appropriate non-physician healthcare provider to screen patients referred to orthopedics for THR or TKR surgery. They have the musculoskeletal knowledge to make the same determination as the surgeon with regard to need for surgery, and there is value added for the patients in terms of the increased likelihood of referral to conservative management whether they require surgery or not. This model of care can potentially increase the time the surgeons have available to spend in the operating room by decreasing the amount of time they have to spend in clinics seeing patients who do not require surgery. In this way, the model may also serve to decrease wait lists. The use of a physiotherapist to screen orthopedic patients can also serve to augment the orthopedic capacity of the healthcare system and ease the burden facing patients with osteoarthritis by freeing orthopedic surgeons to perform surgeries, and by offering the patients access to appropriate conservative management options.

It is imperative that solutions to the looming crisis in orthopedics in Canada be sought, tested and implemented. This study is an important first step in ensuring that Canadians have their orthopedic needs met in the future. This model of care has been implemented in its entirety in Kingston, with a physiotherapist screening all patients referred for joint replacement surgeries for the participating surgeons. HQ

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