The effect of total knee replacement on employment in patients under 60 years of age

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ABSTRACT

INTRODUCTION The effect of primary total knee replacement on the employment status of 56 patients under 60 years of age was examined at a mean follow-up of 64 months.

PATIENTS AND METHODS A total of 56 primary total knee replacements performed on patients under the age of 60 years by two surgeons between 1996 and 2003 were retrospectively assessed by postal questionnaire. Patients were selected from databases held at Holly House and Newham Hospital NHS Trust.

RESULTS Overall, 97.5% of patients who were employed before their operation, returned to their previous work. However, in patients not working prior to total knee replacement none were employed after their operation.

CONCLUSIONS Total knee replacement may be a valuable tool to help some patients to continue working but may not affect patients who are already unemployed.

KEYWORDS

Total knee replacement – Young patients – Work – Employment

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Knee arthritis causes significant problems in the working-age population and can lead to a reduced quality of life, change in employment or unemployment.^{1,2} Primary total knee replacement may prevent these complications and could enable patients to continue working which may be more cost-effective in the long term.³

Previous studies have examined the relationship between the development of arthritis and the type of work performed. Heavy lifting and bending have been reported as important factors in the development and progression of arthritis.^{4–8}

Knee arthritis has previously been associated with a reduced quality of life and unemployment. The effect of arthritis on employment depends on the type of work usually performed, with manual or lifting jobs associated with increased levels of unemployment due to arthritis.^{1,9–14}

Primary total knee replacement is often used to treat knee arthritis with 62,000 procedures being performed in the UK during 2005.¹⁵ Arthroplasty is usually associated with improved joint function and quality of life.^{16–19} Therefore, knee arthroplasty should also aid return to work in patients affected by arthritis.

Few studies have specifically examined whether total knee replacement is associated with a return to employment. In our study, we have attempted to determine the

relationship between knee arthritis, total knee replacement and employment status of the patient before and after their operation.

Patients and Methods

All patients under 60 years old who underwent primary total knee replacement under the care of the two senior authors (MEZ and JI) between 1996 and 2003 were selected from databases held at Holly House Hospital and Newham Hospital NHS Trust. Fifty-six replies were received from 65 sent, giving a response rate of 86.2%.

All pre-operative data were taken from the patient notes including demographic data and diagnosis. The patients selected were then asked to fill a simple postal questionnaire enquiring about their current knee function, pre- and postoperative employment status, length of time taken to resume work and their general opinion of the knee replacement surgery. The questionnaire also enquired about the type of work usually performed, changes in working pattern and reasons for possible not return to work.

The study group contained 33 men and 23 women. The average age at operation was 57.9 years (range, 48–60 years) and the mean follow-up period since the primary total knee replacement procedure was 64 months (range, 47–112 months).

The pre-operative diagnosis showed 39 patients were suffering with osteoarthritis, 11 had rheumatoid arthritis and 6 patients had post-traumatic arthritis (Fig. 1).

Results

The results showed that 41 patients under 60 years of age were employed prior to their total knee replacement. Of these, only one failed to return to employment at the time of review. Fifteen patients were unemployed before their total knee replacement and none returned to work postoperatively (Fig. 2).

Pre-operatively unemployed patients

Of the group of 15 patients unemployed pre-operatively, nine were unemployed due to knee pain, three patients had retired and three patients had other health problems (Fig. 3). Out of the patients suffering with other health problems, two patients suffered a previous myocardial infarction and the other had suffered a cerebrovascular accident.

On average, these patients had been unemployed for a period of 35 months (range, 21–58 months) before the operation and all patients in this group were unemployed for more than a year. Out of patients unemployed pre-operatively, 12 of 15 had previously undertaken manual work (Table 1).

Pre-operatively employed patients

Forty of the 41 patients (97.5%) who were employed before their operation took an average of 10 weeks (range, 6–25 weeks) to return to work. All returned to the same work that they were doing pre-operatively and none reported a reduced work intensity. One patient did not return to work after the operation for reasons unrelated to the knee replacement surgery or his general health. This gives an average postoperative employment rate of 97.5% for patients that were employed before the operation.

All patients were asked their general opinion of the knee replacement and differences were observed between the employed and unemployed groups (Table 2). Overall, most patients were pleased with the result of their operation. Of the unemployed group, eight out of 15 were pleased, four had a fair result and three were disappointed. Of the employed group, 35 out of 41 (85%) were pleased, five had a fair result and one patient was disappointed. However, even the disappointed patient returned to work.

Discussion

Many previous studies have demonstrated an improvement in quality of life after knee arthroplasty.^{16–19} The improvement in quality of life is greater if the patient has been suffering with pain, stiffness or functional limitation before the operation.¹⁹ Even patients with residual pain and stiffness are usually satisfied with the results of arthroplasty.¹⁸ However, the improvement in quality of life after knee

Table 1 The type of work undertaken before the knee arthroplasty surgery

Work performed before TKR	Unemployed before TKR*	Employed before TKR
Manual job	12	11
Non-manual job	3	30

*Most recent type of work given. TKR, total knee replacement.

Table 2 Subjective assessment of the primary knee arthroplasty after operation

Assessment after operation	Unemployed before operation	Employed before operation
Disappointed	3	1
Fair	4	5
Pleased	8	30
Very pleased	0	5

arthroplasty may not necessarily correlate with a return to work.

Our study showed 40 out of 41 patients (97.5%) who were working pre-operatively went back to work within 6 months. Patients were often back at work in 6 weeks and 35 patients (85%) were pleased with the result of the operation. The knee arthroplasty may have enabled patients to continue work after the operation.

Diduch *et al.*²⁰ reported on the results of knee arthroplasty in young patients (under 55 years of age). A total of 114 knee arthroplasties were examined in 88 patients with a mean age of 51 years followed for a mean of 8 years. An increase was seen in the knee scores, HSS score and Lysholm score. Knee arthroplasty was thought to be a suitable operation in the younger age group, but they were not specific about the effect on working after the operation.²⁰

Our results show 80% of patients in the unemployed group prior to total knee replacement had previously performed manual jobs, involving prolonged periods of standing, lifting and bending down. Previous studies have shown the development of arthritis is linked to the type of work undertaken.⁴⁻⁸

Occupations which involve mechanical loading and excessive knee bending have been linked to the development of knee osteoarthritis.⁸ In addition, jobs which generally involve heavy lifting are associated with the develop-

ment of osteoarthritis.⁶ The presence of osteoarthritis has also been associated with high body mass index.⁴

Previous studies have related knee arthritis with a reduced quality of life and unemployment.^{1,9-14} As well as a loss of employment, arthritis has been associated with a prolonged period of sick leave or a change in the type of work performed.^{2,11}

In our study, individuals not working pre-operatively did not resume working postoperatively. Our results show that 12 patients (80%) were performing manual jobs in this group and three patients (20%) were performing non-manual jobs. Overall, eight patients (53%) were pleased with the results of the operation.

Psychosocial aspects may be relevant to the overall perception of success in total knee replacement; in our unemployed group, seven out of 15 patients (47%) reported a fair or disappointing result of the total knee replacement. Our study did not enquire if a patient was receiving any financial compensation but previous studies have examined the total knee replacement in patients receiving worker compensation.²¹⁻²⁴ Patients receiving financial compensation may be less satisfied with a joint replacement procedure, even when there has been an overall improvement in joint function.^{23,24} However, increased knee pain, reduced range of movement and lower functional outcome scores have all been reported in patients receiving worker compensation.²¹⁻²⁴

Norman-Taylor *et al.*²⁵ studied both hip and knee surgery patients and described changes in employment after surgery. Eleven out of 31 patients before total knee replacement operation were described with a Rosser index of IV or more, which signified severe impairment of work duties or unemployment. After total knee replacement, no patients reported a Rosser index score of IV or more, they were all able to work. The total knee replacement operation significantly improved the functional ability of these patients and it also facilitated a return to work for these 11 patients.²⁵ Our series did not show a return to work in patients that were unemployed pre-operatively.

Mobasheri *et al.*²⁶ examined the effect of total hip replacement on employment status in patients under 60 years of age. They found 49 out of 51 patients returned to work after total hip replacement if they had been working pre-operatively, a return to work rate of 96%. Half of patients unemployed pre-operatively returned to work in this study. They concluded if patient were off work due to hip pain then total hip replacement would facilitate a return to work.²⁶ In our group, none of the patients that were unemployed before the operation returned to work. However, Mobasheri *et al.*²⁶ also reported a reduced rate of re-employment in patients who had been unemployed for more than 1 year before operation. The mean period of unemployment in our group before operation was 35 months (range, 21-58 months).

Conclusions

This study indicates that patients working pre-operatively are highly likely to continue working after total knee replacement. However, total knee replacement is unlikely to facilitate return to work for the already unemployed.

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