

Original

**THE EFFECT OF LOW INCIDENCE OF PRIMARY OSTEOARTHRITIS
OF THE HIP ON THE VOLUME AND
NATURE OF JOINT REPLACEMENT SURGERY**

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Of the 5,330 routine operations performed in a general orthopaedic theatre in central Saudi Arabia between 1988-1993, only 68 total hip replacements were done. Osteo-arthritis was not the most common indication and the majority of patients were below 60 years of age, indicating that the possibility of future revision is high.

This paper studies the practical consequences of the low incidence of hip osteoarthritis in Saudi Arabia and makes the suggestion that total hip replacements and revision arthroplasties should be confined to a limited number of hospitals.

Total hip replacement is one of the most frequently performed major orthopaedic procedures and the most common indication for this operation is osteoarthritis¹. Large numbers of these operations are done every year in Europe and North America. However, among many non-European communities, such as South African Negroes², Hong Kong Chinese^{3,4}, Indians⁵, and Nigerians⁶, the incidence of osteoarthritis of the hip is reported to be low. In Saudi Arabia, Agunwa⁷ found a striking absence of osteoarthritis of the hip in his clinic in Jeddah.

The purpose of this paper is to study the proportionate frequency of total hip replacement in relation to the workload of an orthopaedic unit in a general hospital in central Saudi Arabia. This is an important step towards assessing whether or not it is necessary to structure every orthopaedic theatre on the general model i.e. to expect large numbers of total hip replacements.

METHODS

The records of all routine operations performed between 1 June 1988 and 31 May 1993 in the orthopaedic theatre of the

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Riyadh Armed Forces Hospital were reviewed. Files and x-rays of patients who underwent total hip replacement were studied but those with femoral head replacement for recent neck fractures were excluded.

The age and sex of patient and the pathology of the hip joint were recorded. The type of prosthesis inserted was noted, to underline the variety of components and instruments in stock. Procedures for revision arthroplasty were included and the condition of the initial prosthesis was noted. In addition, all operations for non-traumatic conditions were examined and their frequency noted in relation to the total number of operations performed during that period.

RESULTS

A total of 5,330 routine operations were performed in the orthopaedic theatre during the three-year period of this study, averaging 1,066 operations annually. In this period there were only 68 total hip replacements performed on 56 patients, making it 13.6 operations annually.

The indications for operations are listed in Table 1. Osteoarthritis was not the most common indication, accounting for only 17.6% of the cases. The most common was late complications of femoral neck fracture (26.5%), followed by avascular necrosis of the femoral head (23.5%); of which seven were attributed to corticosteroid therapy. Four hips (four patients) received a revision arthroplasty for a failed total hip replacement.

Table 1: The indications for total hip replacements

| | No. of cases | % |
|-------------------------------|--------------|--------------|
| Old Femoral Neck Fractures | 18 | 26.4 |
| Failed Hemiarthroplasty | 5 | |
| Avascular Necrosis | 8 | |
| Non-Union | 5 | |
| Avascular Necrosis | 16 | 23.5 |
| Unknown | 9 | |
| Corticosteroid | 7 | |
| Primary osteoarthritis | 12 | 17.6 |
| Old Fractured Acetabulum | 9 | 13.2 |
| Rheumatoid arthritis | 6 | 9.0 |
| Old slipped femoral epiphysis | 1 | 1.5 |
| Old CDH | 2 | 3.0 |
| Revision arthroplasty | 4 | 5.9 |
| Total | 68 | 100.0 |

There were 30 male and 26 female patients (Table 2). The average age for females at the time of the operation was 46.25 years (range 24-74 years) and for male patients 54.88 years (range 28-82 years). Of the 56 patients there were 38 (67.8%) below the age of sixty years.

Table 2: Age distribution of patients undergoing total hip replacement

| Age (Years) | Male | Female | Total |
|--------------|-----------|-----------|-----------|
| 20-24 | 0 | 1 | 1 |
| 25-29 | 5 | 2 | 7 |
| 30-34 | 3 | 5 | 8 |
| 35-39 | 2 | 3 | 5 |
| 40-44 | 2 | 0 | 2 |
| 45-49 | 4 | 6 | 10 |
| 50-54 | 2 | 0 | 2 |
| 55-59 | 1 | 2 | 3 |
| 60-64 | 2 | 1 | 3 |
| 65 and above | 9 | 6 | 15 |
| Total | 30 | 26 | 56 |

The types of implants used are outlined in Table 3. All of the long stem femoral components were used for revision.

Table 3: Type of implants used

| Type of replacement | Male | Female | No.of Hips Total |
|-------------------------------|------|--------|---------------------|
| Cemented | 25 | 21 | 46 |
| Cementless | 9 | 6 | 15 |
| Long stem-cemented | 2 | 3 | 5 |
| Acetabular reinforcement ring | 1 | 1 | 2 |
| Total | 37 | 31 | 68 |

Arthroscopy (Table 4), both diagnostic and operative, was the most common procedure. There were 215 major operations for congenital dislocation of the hip (CDH) i.e. osteotomies and open reductions, and 422 minor ie. manipulation under anaesthesia, change of POP, tenotomy, arthrography and removal of metal. There were 187 operations for congenital talipes equino varus (CTEV) and this combined with CDH constituted 15.4% of the total workload.

Table 4: The most commonly performed procedures for non traumatic conditions

| Procedure | No.of cases* | % of total orthopaedic operations |
|------------------------|--------------|--------------------------------------|
| Arthroscopy | 653 | 12.3 |
| Operations for CDH | 637 | 12.0 |
| Operations for CTEV | 187 | 3.5 |
| Operations for knee OA | 168 | 3.2 |
| Diskectomy | 123 | 2.3 |

*Total of all non-emergency operations is 5330

DISCUSSION

Osteoarthritis of the hip constitutes more than 60% of the indications for total hip replacement in Western communities^{1,8}. More than 650 total hip replacements may be done annually in large centres^{1,9} and it is not unusual for one surgeon to perform between 80 to 170 per year^{10,11}. However, because of the low incidence of primary osteoarthritis in this study only a small number of joint replacement operations were performed annually. We also found that osteoarthritis constitutes only a relatively small percentage of the underlying pathology while the most common underlying pathology was late sequel of fractured femoral neck.

The mean age of patients in this study for both sexes was relatively low, being 50.6 years old with 67.8% of those patients under 60 years of age. This makes the possibility of future revision more likely¹².

Because of the large number of hip replacements done in Western Europe and North America many orthopaedic surgeons find themselves acquiring skills in hip surgery and set up theatres that serve this purpose. This study shows that this is not necessarily the ideal situation especially when the cost of instruments and their updating is not matched by the number of patients available.

CONCLUSION

There have been many studies that reported the low incidence of primary osteoarthritis of the hip in non-European communities. This study, however, shows that this low incidence is reflected by the small number of total hip replacement is done. There is, therefore, a need for more studies to determine the pattern of re-orienting the training schemes for orthopaedic surgeons and the organization of their operating theatres together with the cost of equipment, so as to suit the local needs rather than established international standards.

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