(iii) New trends in total hip replacement: follow-up is it required and who pays?

Ali Ghoz a, David Macdonald b,*
*a Room 9, Back of the Institute Building, Orthopaedic Department, Leeds General Infirmary, Leeds LS1 3EX, UK
b Department of Orthopaedic Surgery, Chapel Allerton Hospital, Harehills Lane, Leeds LS7 4SA, UK.

Summary
Total hip replacement is one of the most successful operations in modern medicine. Over 70,000 hip replacements were performed in England and Wales in 2006/7, with 61,456 reported to the National Joint Registry. Ensuring ongoing success of the procedure requires surveillance of results and patient follow-up. The follow-up arrangements vary between surgeons and hospitals across the United Kingdom. Recently, there has been much attention given to the importance and the cost of follow-up to the National Health Service. Some of this attention has been focused on minimising or removing follow-up from secondary care while others have focused on the importance and significance of outpatient follow-up. Both of these options have significant cost implications. The patient, surgeon, implant or purchaser may benefit from the long term follow-up of a Total Hip Replacement (THR). We will assess the potential benefits to these groups and assess the cost.

We attempt to look at the importance of follow-up, current guidelines, minimum requirements, protocols and costs.

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Patient factors
Failure from aseptic loosening of the prosthesis is often silent; the patient may not complain. In addition, some patients with symptoms of failure may carry on with worsening symptoms of failure from fear of having revision surgery. Regular follow-up with X-ray examination identifies the patient at risk of failure. The importance lies in detection of early symptomatic and asymptomatic failure following THR. However, this will only be significant if the failed hip is going to be revised. There are benefits to a planned revision procedure before severe osteolysis develops (Fig. 1a–c) even in asymptomatic patients.

The surgeon has a responsibility for patient safety according to the General Medical Council guidelines on “Good Medical Practice”. Clinicians must provide and arrange advice, investigations, or treatment where necessary. All patients are entitled to care and treatment to meet their clinical needs. It is therefore clear that the operating surgeon has a responsibility to organise the effective follow up of the patient following a surgical procedure.

Patients under the age of 55 years at the time of primary surgery are known to be at increased risk of wear related failure and may require revision surgery.
Implant factors

The National Institute for Health and Clinical Excellence (NICE) has published guidelines on hip implant usage in the United Kingdom. NICE recommended prostheses demonstrate a revision rate of 10% or less at 10 years. The evidence used in support of any prosthesis should relate to data on 10 or more years of follow-up. The Institute also considers it reasonable to recommend prostheses with a minimum of 3 years revision rate experience if their performance is consistent with the benchmark of a 10% revision rate at 10 years. Prostheses that achieve this revision rate would then need to be subject to review (up to 10 years) to ensure that the revision rate remains consistent with the 10 year benchmark.

Many new designs of THR have been introduced in recent years. In the UK market, there are more than 62 different primary THRs manufactured by 19 companies. 50% of these implants have been introduced in the last 5 years. Only 30% of these implants have any results published in peer-reviewed journals. These new designs highlight the importance of consistent follow-up in order to determine if these prostheses meet the basic requirement for survivorship at 10 years. An example of the importance of this requirement is the catastrophic failure of the 3 M Capital THRs which were implanted in the UK from 1991–1998. The failure rate was 20% in less than seven years after 4600 implants. That failure led to the inception of the National Joint Registry (NJR).

Resurfacing arthroplasty represents an almost separate entity within THR. According to NICE guidelines, an audit on the appropriateness and effectiveness of the use of metal on metal hip resurfacing arthroplasty needs to be carried out to establish its efficacy against well established conventional THRs. This will depend on continuous data collection at reasonable intervals. The most recent NJR data suggest a significant increase in revision rates for resurfacing arthroplasty in the first post-operative year. This increase appears to affect particularly the over 55 year old female.

Surgeon factors

Revision THR costs more and does not give as good a functional result or last as long as primary THR. This is particularly so if revision occurs late with significant bone loss on either the acetabular or femoral side. In most cases,
this can be avoided if failure is detected early to allow early revision before catastrophic osteolysis occurs.

Early asymptomatic failure can only be identified radiologically. For surgeons who revise such failures follow up of “hips at risk” is essential. For surgeons who will only revise symptomatic failure, on-going radiological revue is of little value and could probably be replaced with patient questionnaires or family doctor education to encourage re-referral when symptomatic.

Informed consent requires the surgeon to be aware of his results to be able to advise the patient prior surgery. This can only be done through the process of clinical audit which entails regular patient follow-up. Early follow-up will identify early post operative complications, but later wear-related complications require long-term follow-up.

The purchaser

British Orthopaedic Association (BOA) guidelines state that part of the contractual agreement with purchasers and commissioners requires follow-up to be included to identify premature failure of a THR. Data from each centre performing these procedures should be available and obtainable in a common format for regional and national audit.
This should be the same in the National Health Service and in the private sector.

The NJR was established to fulfil this role. A £25 levy has been added to the cost of every hip and knee replacement inserted since 2003. This levy was reduced to £20 in 2008. This generated an income in excess of £2.6 million in 2007. The only outcome data that have been generated have been short-term revision rates. The NJR has now achieved “linkage” with the central Hospital Episode Statistics (HES) which will allow some recording of other complications that require hospital admission. Such linkage will not allow the identification of asymptomatic failures or failures producing symptoms that do not result in a hospital admission.

Protocols and costs

Ideally all patients should be followed up clinically and radiologically.

The factors discussed above demonstrate that some patients can probably be safely discharged once the surgeon is happy they have recovered from surgery and not developed any early post-operative complications. This group would include the low demand elderly patient having a NICE recommended implant without early complications.

This would leave a group of “high risk” hips that should be followed up. This group should include:

- Under 55 years of age at time of primary surgery
- Revision procedures
- High demand patients over the age of 55 years
- Implants not fulfilling NICE 10 year follow-up guidelines

Nurse or physiotherapy led follow-up

The consultant surgeon is not involved. A specialist arthroplasty practitioner performs all the post-operative checks. If he or she detects failure or problems, then a referral back to the consultant is made. Radiological review can be performed by the arthroplasty nurse, if trained, or may require a clinician to review just the x-rays.6

Patient questionnaire

The patient is sent a questionnaire to fill out at the regular intervals highlighted in the BOA guidelines. The advantage of this would be removing the cost of seeing the patient either by a clinician or a nurse. It will detect symptomatic failed THR, but miss asymptomatic failures.

Radiological review is omitted.

Authors’ protocol for follow-up

Patients who are less than 60 years at the time of primary surgery and all revision procedures are seen at 6 weeks, 1 year then every 5 years with an antero-posterior x-ray.

All the others are seen at 6 weeks, and then 1 year. If the patients and X-ray are satisfactory at that stage they are discharged back to their family doctor.7

Cost

An antero-posterior hip X-ray costs approximately £70. Administrative costs for an out-patient visit are estimated to be £80. The additional cost for follow-up beyond the one year review out to the 10 year period is therefore £300. Some patients will require longer follow-up, but many will not require follow-up in view of comorbidities or death. In the authors’ practice 30% of the patients fulfil the long term follow-up requirements and therefore the average cost for this programme across his whole hip replacement practice is approximately £100 per hip replacement.

“Payment By Results” (PBR) currently pays £73 as a basic rate for a follow up consultation.

This fee includes any X-ray cost. On this basis NHS patients funded by Primary Care Trusts (PCTs) are having their follow-up partially funded by the provider institution.

Conclusion

Follow-up arrangements for THR vary across the UK. For best practice, patients should be followed up clinically and radiologically in the long-term. This is becoming increasingly difficult with the current resources. Follow-up using questionnaires with X-ray checks by non-medically qualified practitioners are used in some centres, but there is no audit evidence of the efficacy of such arrangements. Resources must be made available for follow-up data from each provider. The funding currently made available to the National Joint Registry in the United Kingdom should go part way to performing this function.

Conflict of interests

No benefits in any form have been received or will be received from a commercial party related directly or indirectly to the subject of this article.

References