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How long should patients be followed-up after total hip replacement? Current practice in the UK

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Some 1000 postcard questionnaires were sent to Fellows of the British Orthopaedic Association (BOA) to establish current follow-up practice of primary total hip replacement (THR) patients. For cemented THRs, 50% of surgeons saw their patients for under 1 year, 78% under 5 years with indefinite follow-up being performed by 14%. There was significantly more follow-up of uncemented and hybrid prostheses with the proportions being 25%, 56% and 30% respectively (χ^2, P <0.0001). This study has revealed a wide variation in practice between individual surgeons and has shown over one-third of surgeons feel they are prevented from performing as much follow-up as they would wish by the availability of clinic resources. Higher follow-up rates of uncemented components may reflect a lack of confidence in their long-term performance.

Key words: Total hip replacement – Questionnaire – Follow-up

Long-term radiographic review of asymptomatic total hip replacements (THR) has been suggested in order to identify those patients who develop asymptomatic loosening and wear.[1–4] Early revision before bone loss has occurred is cheaper and less technically demanding, has been shown to produce better results,[5,6] and may prevent catastrophic failure.[7] However follow-up of an increasing pool of patients is time consuming, only rarely leads to a change in management,[8] and has financial implications for purchasers of health care both within the health service and private sector.[9] There has been much recent discussion about the variation in performance of the multitude of different hip prostheses currently on the market, and criticism has been levelled at the lack of long-term results of many of these.[10] This, in turn, has strengthened calls for a national arthroplasty register[11] and lead to closer regulation of new implants.[12,13]

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Despite this, there seem to be no established guidelines to influence the frequency and duration of follow-up necessary after THR. Therefore, we surveyed the Fellows of the British Orthopaedic Association (BOA) in order to establish current practice in the UK.

Materials and Methods

Some 1000 Fellows of the BOA were surveyed by post. The postcard questionnaire asked how long and how often patients were seen after a routine primary THR. A distinction was made between cemented and hybrid/uncemented hips. Additional questions were included and consisted of reasons for follow-up, the number of THRs performed annually, the type of hospital, and the length of time in a consultant post. Fellows were also asked whether they felt that review of patients was constrained by lack of resources and whether their NHS practice varied from that in the private sector. Replies were anonymous. Statistical analysis was performed using Statview 4.0 software (Cherwell Scientific, Oxford, UK).

Results

In all, 693 replies were received, a response rate of just under 70%, of which 43 replies came from retired or specialist surgeons who did not perform THR. Thus, 650 replies were suitable for analysis and are the subject of this study. Three consultants performed uncemented

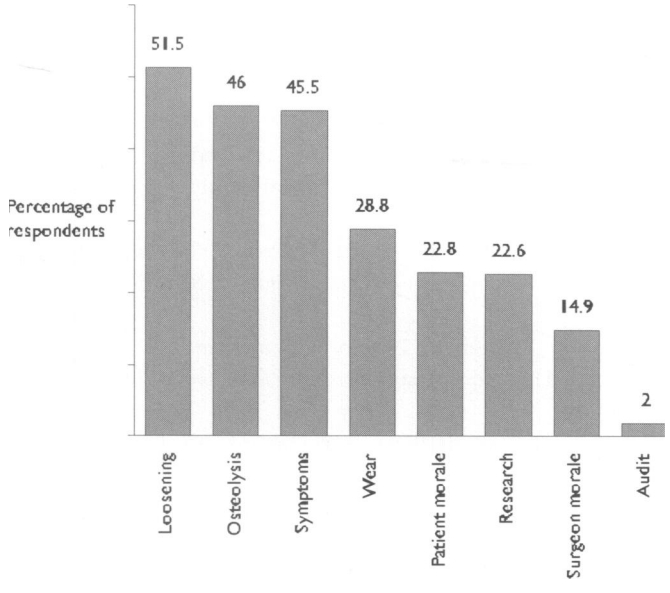

Figure 1 Popularity of reasons given for follow-up of primary THR patients

Table 1 Distribution of routine follow-up duration after total hip replacement amongst British orthopaedic surgeons

Duration of follow-up	Cemented THR $n = 647$ (%)	Uncemented/ hybrid THR $n = 365$ (%)
Once	97 (15.0)	18 (4.9)
Less than 1 year	228 (35.2)	73 (20.0)
1–5 years	183 (28.3)	115 (31.5)
5–10 years	17 (2.6)	21 (5.8)
Over 10 years	9 (1.4)	20 (5.5)
Forever	90 (13.9)	111 (30.4)
Certain age	23 (3.6)	7 (1.9)

THR exclusively and so were included in the results for uncemented hips only. Regarding cemented THR, 325 out of 647 (50%) surgeons followed their patients up for a year or less; 78% of surgeons followed patients up for under 5 years and 14% of surgeons followed their patients up indefinitely. In contrast, of the 365 surgeons who performed uncemented or hybrid THR, 25% followed their patients up for less than one year, 56% for under 5 years and 30% indefinitely (Table 1). The difference between the two groups is significant (χ^2, P <0.0001). Radiographs were taken annually by 31% of surgeons and less often by 16% of surgeons. Interestingly, 51% of surgeons only took radiographs when patients complained of symptoms in their hip replacements. Generally, the review policy was not related to the annual hip replacement workload (Table 2), except that the 12.3% of surgeons who performed more than 100 were more likely to follow up their patients indefinitely (χ^2, P <0.0001), possibly representing the activity of specialist hip units. The early detection of loosening (51.5%), osteolysis (46%), symptoms (45.5%), and wear (28.8%) were the most common reasons chosen for following patients up routinely (Fig. 1). Over one-third of respondents (36%) felt that clinic resources prevented them from performing as much follow-up as they would wish. The majority of surgeons (72%) worked in District General Hospitals, with 23% in Teaching Hospitals, and 5% performing the majority of their THRs in the private sector. Type of hospital did not influence follow-up practice (χ^2, $P = 0.22$) and only 80 (13%) of 595 surgeons who worked in both the NHS and private sector distinguished between this in their review policy.

Discussion

Excellent long-term results have been published for cemented THR[14] and these have been approached in

Table 2 Distribution of annual THR work-load amongst Fellows of the British Orthopaedic Association

Number of THRs *per annum*	Percentage of respondents
Under 5	2.3
5–20	9.4
20–50	41.4
50–100	34.6
Over 100	12.3

the medium-term by some hybrid[15–17] and uncemented designs.[1] In addition, two-thirds of patients die with their original prosthesis *in situ*,[14,18] making revision surgery necessary in only a small minority. About 80% of revision surgery is performed for aseptic loosening, a process which, for the acetabular component, is often symptomless[19] and, therefore, may only manifest years or even decades after the original operation.[20]

This survey, whose response rate was similar to previous studies,[21,22] has shown that over three-quarters of surgeons do not perform long-term follow up of cemented THR patients. Uncertainty over performance is reflected by a greater proportion of surgeons performing long-term indefinite follow-up of uncemented components, although the majority (56.4%) practiced discharge within 5 years. Standard out-patient clinical and radiological follow-up is time-consuming and expensive. The cost of setting up dedicated research clinics for a single evaluation as part of the Trent Regional Arthroplasty Study was £60 per patient.[23] Therefore, based on the estimate of 40,000 THR performed in the UK per year,[24] the cost of a single clinic visit and radiograph for a single year's patients is £2.4 million. The cost of reviewing all THR patients annually would, therefore, run into tens of millions of pounds, even allowing for patient death and cheaper hospital initiated follow-up. Furthermore, new out-patient referrals would face delays due to clinics being overwhelmed by follow-up patients. Whilst excessive early component migration is predictive of later failure, its use is not applicable outside a research setting.[25,26] Therefore, apart from young patients and those who have received an untested prosthesis, it is difficult for most surgeons to predict which of the remaining large majority of patients would benefit from closer follow-up. It would be expected that early revision surgery based on radiological criteria alone would lead to improved results and lower implant and bone allograft costs.[5,6] The in-patient hospital cost for revision following a late periprosthetic fracture is twice as much as elective revision,[27] but this complication is unusual with the cumulative postoperative risk being 2.5% at 15 years.[28] Further studies are needed to determine the most cost-effective strategy for hip replacement follow-up.

Conclusion

This study has demonstrated a wide variation and lack of uniformity in follow-up practice by British orthopaedic surgeons, with higher rates for uncemented components possibly reflecting uncertainty over their performance. Health care resources will always be limited and, therefore, long-term follow-up should be targeted towards young patients and those with untested prostheses. Aseptic loosening may take years to develop and review protocols should be influenced by this, with out-patient services organised to facilitate review at 2–5 yearly intervals or greater use made of postal questionnaires and radiology request forms. When patients are discharged, it is important both they and their general practitioners are aware of the potential for late failure to ensure prompt re-referral.

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