



Original article

## Change in Harris hip score in patients on the waiting list for total hip replacement

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**Aim:** To investigate the change in the Harris hip score in patients waiting for a total hip replacement, between the time of listing for operation and immediately pre-operatively.

**Patients and Methods:** For 167 consecutive patients listed for total hip replacement, the Harris hip score was taken both at time of listing for surgery and at pre-operative assessment 2 weeks prior to surgery.

**Results:** The median wait for operation in our unit was 330 days. The Harris score immediately pre-operatively decreased compared with the initial score, with a mean decrease of 8.9 points. This result was highly statistically significant. Decrease in score also correlated with time on the waiting list.

**Conclusions:** Patients requiring total hip replacement deteriorate while on the waiting list. Waiting times should be as short as possible to reduce unnecessary suffering.

**Key words:** Total hip replacement – Harris hip score – Waiting lists

Total hip replacement (THR) has become one of the most successful modern orthopaedic operations.<sup>1,2</sup> Annually, approximately 800,000 primary THRs are performed world-wide<sup>3</sup> and it is likely that this number will increase in the future. Unfortunately, the demand for THR has outstripped the health systems' ability to supply the procedures within a short period of time and this has resulted in the establishment of waiting lists.

When a patient is seen in clinic and deemed to be suitable for a THR, his or her name is placed on a waiting list, which in some parts of the UK may mean a delay of 18 months or more before the operation is performed. The time spent waiting for a THR is time when the patient is often in severe pain and suffering with deformity or immobility.

Clinical scoring systems have been developed to evaluate hip pathology, most of which are based on estimation of pain, deformity and functional restriction.<sup>4</sup> One such commonly used score is the Harris hip score.<sup>5</sup>

The Harris hip score was originally developed in 1969 to help evaluate the results of hip replacement and has become widely used as a means of comparing results and hip pathology. Patients are scored up to a maximum of 100. Factors assessed are: pain (total score of 40); function (total score of 47); range of motion (total score of 5); and absence of deformity (total score of 8). Function is further broken down into daily activities (14 points) and gait (33 points).

The aim of this study was to investigate the change in the Harris hip score in patients waiting for a THR,

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between the time of listing for operation and immediately pre-operatively.

**Patients and Methods**

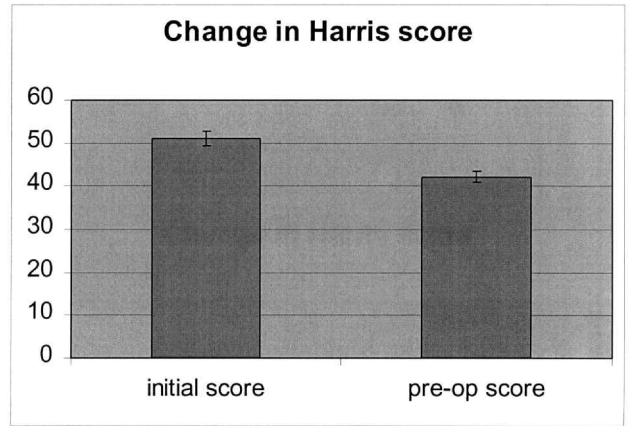
A retrospective study was undertaken of 167 consecutive patients undergoing primary total hip arthroplasty at the Robert Jones and Agnes Hunt Orthopaedic Hospital during the period January 1998 to November 2000. All patients in the study were under the care of the arthroplasty team consisting of 3 consultants. When a patient was first placed on the list for a primary THR, hip function was assessed and documented by means of a Harris hip score. This score was then repeated at the pre-operative visit, 2 weeks prior to surgery. All hip score data were collected prospectively.

An initial score, a pre-operative score, and a waiting time was available for all 167 patients. The distribution of scores both initially and pre-operatively were found to be approximately normally distributed using the Kolmogorov-Smirnov test; it was, therefore, appropriate to use a paired *t*-test to compare the two scores. Statistical significance was set at  $P < 0.05$ . Waiting times were not normally distributed and so the Spearman rank correlation test was used to correlate waiting time with initial score and change in score.

**Results**

A total of 167 patients were included in this study. The median wait for an operation was 330 days.

The mean Harris score at initial assessment was 51.0, and the mean score pre-operatively was 42.1 (Fig. 1). This average decrease in score of 8.9 points was statistically significant ( $P < 0.0001$ , paired *t*-test).



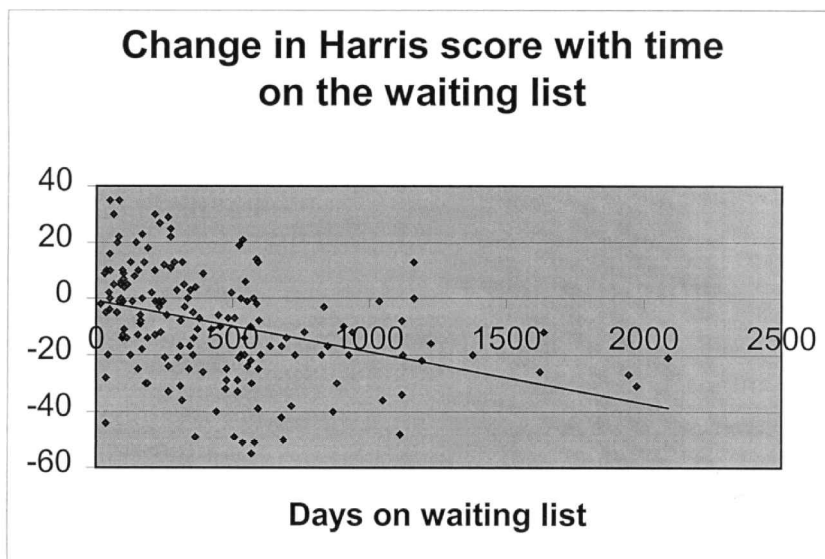
**Figure 1** Mean Harris score when placed on the waiting list and immediately pre-operatively. Error bars represent SE of the mean.

Length of time on the waiting list correlated with the change in score seen, with patients waiting longest having the biggest decrease in scores ( $r = 0.44$ ,  $P < 0.0001$ , Spearman rank correlation test). The slope of the regression line was 6.6 points/year (Fig. 2).

Length of time on the waiting list was dependent on initial score, with those patients with the highest scores waiting longer than those with the lowest scores ( $r = 0.47$ ,  $P < 0.0001$ , Spearman rank correlation test)

**Discussion**

This study has shown that, on average, the Harris hip score decreases with time on the waiting list for THR, and



**Figure 2** Change in hip score related to time on the waiting list.

that the decrease is positively correlated with the length of wait. The mean decrease in score was 8.9 points. This could approximate to a change from 'moderate pain' to 'marked pain' (10 points difference) or 'slight limp' to 'unable to walk' (8 points difference).

All patients in this study were listed for THR on the basis of history, clinical examination and plain radiography. A Harris hip score is taken on all patients with hip arthritis in order to document progress both pre- and postoperatively. It is not used at all as a tool for prioritisation. Harris scores at the time of listing varied widely, due partly to a variable severity of disease and also presumably the variability of patients' perception of their pain and disability. The finding that those with the lowest scores on presentation waited the least time suggests that the more severe cases were offered an operation on a more urgent basis. This was achieved using clinical judgement alone with the listing surgeon categorising patients as 'urgent', 'soon', or 'routine'.

The natural history of some orthopaedic conditions is to stabilise or even improve with time, for example sciatica, or frozen shoulder. In this study, we have shown that this is not the case with arthritis of the hip.

## Conclusions

Patients waiting for a total hip replacement have to endure pain and disability that gets progressively worse with time on a waiting list. This fact should be given due consideration by those responsible for resource allocation in the health service.

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