What do patients think about minimally invasive total hip arthroplasty?

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ABSTRACT

INTRODUCTION The introduction of minimally invasive techniques for hip replacement into clinical practice has been driven by the perceived benefits of smaller incisions, shorter in-patient stays and faster rehabilitation. This may be at the cost of higher complication rates. The purpose of this study was to explore the opinions and priorities of patients in relation to these techniques.

PATIENTS AND METHODS A cross-sectional survey was performed in an elective out-patient setting.

RESULTS Of 44 patients approached, 36 agreed to participate. From most important to least important, patients rated the following items in order: 'rate of complications'; 'implant survival'; 'length of rehabilitation'; 'time in hospital' and 'length of scar'. Despite this, 21 of 35 (60%) responders stated they would accept the offer of minimally invasive techniques if made.

CONCLUSIONS Patients appear to prioritise long-term outcomes and low complication rates over the shorter scars, reduced in-patient stay and reduced rehabilitation times potentially offered by minimally invasive hip arthroplasty. Despite this, the technique remains popular among patients.

KEYWORDS

Total hip replacement – Minimally invasive surgical procedures

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Minimally invasive surgery for hip replacement has been promoted by implant companies and surgeons in recent years. The potential advantages include reduced soft tissue trauma, reduced blood loss, smaller skin incisions, reduced length of stay and faster rehabilitation.^{1,2} However, there are little data about whether these claims are justified, lack of agreement about what constitutes minimally invasive hip replacement surgery and several authors have suggested that the procedure may be no better or inferior to conventional techniques.^{3,4} We wanted to investigate whether patients had heard of these procedures, what weight they attached to the relative risks and benefits, and whether or not they would consider undergoing a minimally invasive hip arthroplasty.

Patients and Methods

A cross-sectional survey was undertaken in an elective out-patient setting in a teaching hospital. Patients were selected from those attending out-patient clinic of four consultant orthopaedic surgeons with an interest in hip arthroplasty

(NB, JH, AM and CG) throughout the 8-week period of the study. Eligible patients were over 18 years of age, with osteoarthritis of the hip (either pre- or postoperative), and were able to understand written English. Patients with other forms of arthritis and those who required or had undergone complex primary or revision hip surgery were excluded. Ethical approval was obtained.

A convenience-sampling approach was used to select patients. Patients were provided with an information sheet describing the study and gave informed consent. The information sheet gave an outline of what was meant by minimally invasive hip replacement and described the potential advantages and disadvantages of it. Minimally invasive surgery was described as 'experimental' and with an 'unproven track record'. Patients did not routinely discuss minimally invasive surgery with their surgeon before completing the questionnaire. The survey instrument was a questionnaire with two sections – demographic and clinical items completed by the researcher (GM) and a series of questions completed by the patient. The first section included items for age, gender and employment status. The second,

Table 1 Summary of responses

Question	Number of	Not important	Slightly important	Moderately important	Very important	Extremely important
1. 'Length of wound'	34	22	5	7	2	0
2. 'Time in hospital'	36	15	7	6	5	3
3. 'Recovery time'	36	12	3	6	9	6
4. 'Survival of implant'	36	4	0	3	16	13
5. 'Complications'	36	2	1	2	6	25

Mode response in **bold**.

patient-completed section included questions about the advantages and disadvantages of minimally invasive hip replacement and their relative importance as perceived by the patient (Appendix 1). Responses were in the form of yes/no answers, 5-point Likert-type scales and free text. A final question asked if the patient would consider undergoing a minimally invasive hip replacement.

Data were analysed by calculating averages, ranges and mode responses. Comparison between groups was performed using chi-squared and *t*-tests. Significance was taken at the 5% level throughout. Statistical tests were performed using the statistical package Minitab (release 13.1).

Results

A total of 44 patients meeting the inclusion criteria were approached. Eight declined to participate, leaving 36 patients (19 pre-operative, 17 postoperative) who completed questionnaires. The mean age of participants was 71 years (range, 49–86 years). Fourteen (39%) were male. The age and sex distribution of patients who declined to participate did not differ significantly from the remainder. Similarly, the age and sex distribution of pre-operative and postoperative patients did not differ significantly. Of the 36 patients, 33 had retired, one was

Figure 1 Rank order is shown for each of the items shown.

semi-retired, one was an ambulance driver and another was unemployed.

Responses are summarised in Table 1. In question 1, concerning the length of the wound, patients were asked how important it would be to have a wound shorter than 25 cm (10 inches). The most frequently selected (22 of 34; 61%) response to this question was that the length of the wound was 'not important'. In question 2, concerning the length of stay in hospital, 15 of 36 (42%) stated that this was 'not important'. In question 3, 12 of 36 (33%) patients rated that the length of recovery as 'not important'. In question 4, 16 of 36 patients (44%) rated survival of the implant as 'very important'. In question 5, 25 of 36 (69%) of responders rated a low rate of complications as 'extremely important'.

In question 6, participants were asked to rank length of scar, time in hospital, length of rehabilitation, implant survival and complications in order of importance. The results are summarised in Figure 1. From highest (most importance) to lowest (least importance), the items were ranked overall in the following order: 'rate of complications'; 'implant survival'; 'length of rehabilitation'; 'time in hospital' and 'length of scar'.

Patients indicated that a reasonable length of scar was a mean of 17.7 cm (range, 5.0–50.5 cm); a reasonable length of time in hospital was a mean of 8 days (range, 3–21 days) and a reasonable length of time taken to rehabilitate would be a mean of 15 weeks (range, 2.5–182 weeks).

Of the patients participating in this study, 25 of 36 patients (69%) had heard of the existence of minimally invasive techniques for total hip arthroplasty. Twenty-one of 35 (60%) stated that they would opt for a minimally invasive technique if they were offered it, despite the fact that the complication rate and long-term outcomes were unknown.

No significant difference could be detected in the responses of pre- and postoperative patients. Patients aged 75 years and over were compared with younger patients. The only difference detected was the response to the question about what patients felt was a reasonable time to spend in hospital (older patients 10.9 days versus younger patients 7.0 days; $P = 0.003$).

Discussion

The aim of this study was to explore the opinions and priorities of patients with hip arthritis about minimally invasive techniques for hip arthroplasty. We have shown that when patients are asked to fill in a questionnaire, their priorities are that the joint replacement should be long-lasting and the

procedure associated with a low complication rate. These issues were more important to our patients than the perceived benefits of minimally invasive arthroplasty – shorter scars, less time in hospital and faster rehabilitation. Although the numbers were small, our study showed no difference between pre- and postoperative patients in their opinions about this technique. To our knowledge, this is the only study to have asked patients for their opinions about minimally invasive hip replacement surgery.

This study is exploratory and uses an instrument that has not been formally tested for reliability and responsiveness but does have good face validity. The number of patients recruited was relatively small and for both these reasons the results should be interpreted with caution. We did not collect data on why patients declined to participate, but some informally expressed concern that their answers to the questionnaire might have influenced their treatment despite reassurances to the contrary.

Conclusions

It was of interest that, despite a desire to avoid complications and have an implant with long survival, a majority of patients still expressed an interest in minimally invasive arthroplasty. This is in keeping with the clinical experience that patients often express a desire to have the latest, new development in surgery, perceiving that new techniques are likely to be better. However, it appears that although patients can make appropriate judgements about the relative importance of short-term benefits and long-term complications, they are easily seduced by the allure of something new, perhaps particularly when it is portrayed in the media as desirable and a great advance. It is up to their surgeons to temper this enthusiasm, and proceed with caution.

References

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See APPENDIX on next page

APPENDIX 1: Questionnaire

1. *Currently people who have hip replacement surgery are left with a scar of approximately 25 cm (10 inches) in length. How important would it be to you to have a shorter scar?*

Please mark your answer on the scale below by ticking one of the following:

• Not important	1
• Slightly important	2
• Moderately important	3
• Very important	4
• Extremely important	5

2. *Currently, most people who have a hip replacement spend approximately 1 week in hospital afterwards. How important would it be to you to have a shorter stay in hospital?*

Please mark your answer on the scale below by ticking one of the following:

• Not important	1
• Slightly important	2
• Moderately important	3
• Very important	4
• Extremely important	5

3. *Currently, people who have hip replacement surgery spend approximately 6 months recovering. How important would it be to you to have a shorter recovery time?*

Please mark your answer on the scale below by ticking one of the following:

• Not important	1
• Slightly important	2
• Moderately important	3
• Very important	4
• Extremely important	5

4. *Currently, people who have hip replacement surgery have approximately a 90% chance of the replacement lasting 10 years or more. How important would it be to you to have a hip which lasted for at least 10 years?*

Please mark your answer on the scale below by ticking one of the following:

• Not important	1
• Slightly important	2
• Moderately important	3
• Very important	4
• Extremely important	5

5. *Currently, people who have hip replacement surgery have less than a 5% chance of suffering a serious postoperative complication, for example infection or dislocation. How important would it be to you to have a complication rate as low as this?*

Please mark your answer on the scale below by ticking one of the following:

• Not important	1
• Slightly important	2
• Moderately important	3
• Very important	4
• Extremely important	5

6. *Please rank the following in order of how important they are to you by putting a number from 1 to 5 in the adjacent space using 1 for the most important and 5 for the least important.*

a. Length of scar	.....
b. Length of time in hospital	.....
c. Length of rehabilitation time	.....
d. Length of implant survival	.....
e. Rate of complications	.....

7. *Please give your opinion as to what you think is a reasonable amount which you yourself would be satisfied with following hip replacement:*

a. Length of scar	.....cm	or	.....inches
b. Length of time in hospital	.....days		
c. Length of time in rehabilitation	.....weeks		

8. *If we could offer you a type of hip replacement operation with a smaller scar, a shorter hospital stay and recovery time but unknown complication rate and longevity of the implant would you accept it?*

Yes / No

9. *Have you ever heard about minimally invasive or 'key-hole' hip replacement surgery?*

Yes / No

If you have could you please take a few moments to tell us what you know about this procedure and where you learnt about it?

.....
 .....
 .....
 .....

**Thank you for completing this questionnaire,
 your help is much appreciated.**