Compliance with Sleep Instructions After Total Hip Arthroplasty

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Abstract

Background
The aim of this study was to prospectively investigate the patient-reported compliance and effects upon sleep quality of postoperative sleep protocols after primary total hip arthroplasty.

Materials and Methods
All patients attending their 12-week follow up appointment after primary total hip arthroplasty were recruited during the study period. Patients completed a self-reported questionnaire regarding compliance with the postoperative sleep protocol, details regarding reasons for non-compliance and complications experienced.

Results
Fifty-four patients were recruited and completed questionnaires at their 12-week follow-up. Only 18 (33%) patients were able to sleep supine for the full 12-week period without difficulties. Twenty-four patients slept supine for a mean period of 6.8 weeks and reported discomfort and inability to sleep. There were no significant complications within this study group in association with non-compliance.

Conclusion
We believe that this study has highlighted a significant problem experienced by patients undergoing primary total hip arthroplasty which requires further investigation as to whether specific sleeping instructions are necessary in the postoperative period.

Introduction
Rehabilitation after total hip arthroplasty (THA) has changed considerably over the past few decades. Postoperative protocols have included significant periods of bed rest, immobilisation and protected weight bearing with hospital inpatient stays of two to three weeks in the 1960s and 1970s [3-5]. More recent protocols include immediate mobilisation, physiotherapy on the day of surgery and discharge within the first week [10].
Our departmental protocol devised by the orthopaedic surgeons and physiotherapists instructs all patients undergoing primary THA to sleep in a supine position for 12 weeks postoperatively unless specified otherwise by the operating surgeon as part of the dislocation precautions. They are also instructed to avoid hip flexion beyond 90° and adduction past the midline. Patients are allowed to sleep either on the operated or normal side after this period depending upon their preference. The instructions are given to the patients at a preoperative class by the physiotherapists and occupational therapists six weeks prior to surgery.

The questionnaire data was prospectively collected and inserted into a database during the study period with descriptive analyses being performed to identify any difficulties that the patients may have reported during the 12-week postoperative period after primary THA.

The Medline, EMBASE, CINAHL and AMED databases were also searched for relevant evidence with regards to sleeping in a supine position after primary THA.

Results

Fifty-five patients were followed up at 12 weeks after primary THA surgery within the outpatients’ department. Complete questionnaire data was available for 54 patients. There were 25 males and 29 females with an age range of 48 to 91 years (mean 71.9±8.4). Thirty-five patients underwent primary right THA and 19 patients had primary left THA, all of whom had a primary diagnosis of osteoarthritis. All surgery was performed using an antero-lateral approach to the hip with all patients receiving primary cemented THAs with femoral head sizes ranging from 22.225 to 28mm. Thirty-one patients had a preferred sleeping position on their side, four on their backs and a combination of side and back in 19 patients with no patients experiencing poor quality sleep prior to surgery. All 54 patients revealed that they had been instructed to sleep in the supine position after surgery. Instructions were given both written and verbally by the occupational therapists and physiotherapists at a pre-operative class approximately six weeks prior to their surgery date. Fifty-two patients reported that they had been instructed to sleep supine following surgery for a period of 12 weeks with one patient reporting an instructed six weeks and one patient being unable to recall the information. The sleeping behaviour of the patients is shown in figure 2.

The actual period that patients reported that they had slept in a supine position following surgery ranged from three to 12 weeks (mean 9.6±2.8). Only 29 of the 54 patients (54%) within the study actually slept supine for the full instructed period with one patient reporting an instructed period of six weeks and sleeping supine for this whole period. When questioned regarding difficulty with sleep related to sleeping position, 36 patients reported significant difficulty with 18 patients reporting no difficulties. Of these 36 patients, 12 managed to sleep in the supine position for the full instructed period despite difficulties with sleep. The other 24 patients managed to sleep in a supine position for a period ranging from three to 10 weeks (mean 6.8±1.5). When questioned about the reasons for patients not being able to sleep supine as instructed or problems associated with this, 20 patients reported this to be an uncomfortable position resulting in inability to sleep. Four patients reported rolling in their sleep, one reported sore heels and one reported exacerbation of low back pain.

The patients were also asked about their preferred sleeping position after the instructed period was completed and 20 preferred the operated side, 17 the non-operated side, 9 a combination of the above, the back in one and front in one. Six patients were either unsure or did not answer the question. There were no major complications within the study group. One patient reported ongoing pain and poor range-of-motion of the joint, one patient reported trochanteric bursitis and one patient reported that they had abductor weakness. Two of the three patients had slept supine for the instructed period and one patient had slept supine for six weeks postoperatively having reported difficulty due to discomfort and inability to sleep.

Discussion

Achieving good quality sleep is a key aspect of good physical and mental functioning especially when recovering from a major illness or surgical procedure. Postoperative protocols for primary THA instruct patients to sleep in a supine position for two to three months as a part of the dislocation precautions and to allow the soft tissues to heal adequately [6,12]. It has been suggested that this is associated with sleep deprivation with associated anxiety and decreased satisfaction [11] despite the relief of osteoarthritis pain and expected improvement in sleep quality [6,7].
The results of this study confirm that most patients within our department had significant difficulties in complying with the instructed 12-week period of sleeping in a supine position after primary THA. Only 18 out of the 54 (33%) patients within this study were able to sleep supine for the full 12-week period and reported no difficulties. The other 36 patients (67%) reported significant difficulties in maintaining a supine position for the full period with most reporting that it was uncomfortable and prevented them sleeping. Of these patients, 12 completed the full 12-week period of supine sleep whereas 24 patients reported a supine sleep period of only 6.8±1.5 weeks. There were no dislocations within this group of patients and no other major complications. One patient reported abductor weakness but had slept supine for the full 12-week period.

Most of the patients within this study (n=31) reported that their usual preferred sleeping position was on the side with only four patients reporting that they usually slept supine.

It was not surprising, therefore, that the majority of the patients within this study reported poor sleep and significant discomfort within the postoperative period whilst trying to conform to the sleep aspect of the rehabilitation protocol.

There were no identifilable studies within the medical literature which have directly investigated the effects of sleeping position on the incidence of dislocation and other complications after primary THA. With advances in arthroplasty techniques and material technology, it is questionable as to whether traditional protocols for rehabilitation such as a supine sleeping position after THA are still valid. An important factor to consider is the increased use of larger femoral head sizes of 28mm and 32mm more recently. Both biomechanical [1,9] and clinical [2,8] studies have shown that an increased femoral head size from the traditional 22.225mm to either 28mm or 32mm head sizes increases the range-of-motion and reduces the risk of dislocation by 1.3 and 1.7 times respectively especially if associated with a posterior approach [2]. Although many surgeons would advocate supine postoperative sleeping to allow the surgical wound to heal and prevent excessive hip adduction whilst the soft tissues are healing, especially after the posterior approach, the authors believe that there is little evidence available to support these instructions beyond this period. The current study also demonstrates this as although most patients were unable to comply with the sleep instructions for the full period, there were no significant complications seen. This suggests that such stringent postoperative sleep instructions may not be necessary for most primary THAs although this conclusion is limited by the small sample size in this study.

We believe that this study has identified a significant problem experienced by patients in the postoperative period after primary THA. There is clearly a requirement for further studies to investigate the effects of different sleeping positions after primary THA on the incidence of complications to assess whether a sleeping protocol is a necessary part of modern postoperative rehabilitation or whether it can be discarded as historical. Reducing or discarding this aspect of rehabilitation may reduce the discomfort and poor quality sleep experienced by many patients after primary THA as demonstrated in this study and make it a more positive experience with an improvement in the overall patient satisfaction.

References

9. Klueess D, Martin H, Mittelmeier W, Schmitz KP,
Illustrations

Illustration 1

Figure 1: Patient questionnaire

- In which position do you normally prefer to sleep? - Please select: Back/Side/Prost/Combination
- Were you instructed to sleep on your back after your hip replacement?
- If so, how was this information given to you?
- Who gave the information to you?
- When was the information given to you?
- How long were you asked to sleep on your back after your hip replacement?
- How long did you actually sleep on your back for?
- Did you find it difficult to sleep on your back?
- If you didn’t sleep on your back during the instructed period, what was the reason for this? E.g. medical reason, etc. – please specify.
- When you started to sleep on your back, did you prefer to sleep on the operated side or on the normal side?
- Have you had any significant complications following the operation such as wound problems, dislocation, pain?

Illustration 2

Figure 2: Flow diagram of patient-reported outcomes and compliance

[Diagram showing outcomes and compliance flowchart with decision points and outcomes]
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