CASE REPORT

The relationship between cognitive impairment and recall of advice given to patients following hemiarthroplasty

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Introduction

It has been reported that of all types of fall related injuries in elderly population ≥ 65 years, hip fractures led to the highest hospital admission rates and longest lengths of stay. These patients are known to be often frail, dehydrated and nutritionally deprived. Pre-existing mental impairment with associated co-morbidities is common in such patients and at least 40% of them experience delirium while in hospital. This makes them more vulnerable to poor functional outcome and increased mortality postoperatively.5,10,13 Moreover, patients with decreased mental status are less likely to achieve independence in ambulation and activities of daily living following hemiarthroplasties.9 Therefore, provision of effective rehabilitation for such patients is a major challenge confronting health care professionals.4,11 However, cognitively impaired patients with hip fractures may not be good candidates for such intensive rehabilitation programmes, although only few studies have formally examined this premise.6,7,14

Currently, elderly patients following hemiarthroplasties are given standard precautionary advice to prevent dislocation of their prostheses. This may not always be appropriate because of the widely differing mental capabilities. Hence, we aim to investigate the relationship between the patient’s cognitive state on admission and the recall of the precautionary advice following surgery on rehabilitation outcome.

Patients and methods

Patient selection

Over one month period, 26 femoral neck fracture patients, aged ≥ 75 years were studied prospectively. Prior approval was sought from the local ethics committee and verbal consent was obtained. On admission, mini-mental test score was used to classify nonaphasic subjects into three groups: normal, mildly impaired and severely impaired. On the 2nd post-operative day (POD) the patients were given verbal instructions aimed at preventing dislocation of their prostheses to all the participating individuals in the same manner to avoid any bias in the study. On POD-6 and at 6
weeks, recollection of precautions was tested using a specially designed questionnaire (Fig. 1, scores: 1–10).

**Mental test score**

The patients’ cognitive state was assessed with mini-mental test score, which is part of a standardised set of admission notes for all patients with neck of femur fractures. The mini-mental state examination was originally conceived as a short clinical instrument for detecting cognitive impairment. It was designed to test abilities in orientation, memory, attention, naming objects, following verbal and written commands. It also involved writing a sentence spontaneously and in copying a complex polygon. Each patient was given a score out of 10 on POD-2 and at 6 weeks postoperatively. Patients were classified into three anecdotal groups: normal (>8), mildly impaired (5–8) and severely impaired (1–4).

**Data analysis**

Independent professional statistical help (using SPSS) was enlisted to analyse the results. Values were presented as means, with standard deviation (S.D.) and range. After correcting for the unequal variances t-testing was used to compare their means. Because of the skewed nature of the data, the less powerful non-parametric Mann–Whitney U-test was then used to check the results. Differences were considered significant if $P < 0.05$.

**Results**

There were 85% females and 15% males. Mean age was 80.4 ± 5.5 years. There were 10 patients in Group-I (normal; 38%), 8 in Group-II (mildly impaired; 31%) and 8 in Group-III (severely impaired; 31%) (Table 1). One patient died on POD-4. The score to the questionnaire in Group-I was 6.2 ± 2.0 and 3.2 ± 1.6; Group-II was 3.3 ± 1.8 and 1.2 ± 1.0; and Group-III was 0.3 ± 0.8 and 0.3 ± 0.7 ($P < 0.05$ versus Groups I and II) on POD-6 and 6 weeks, respectively (Table 2).

**Discussion**

Cognitive status is an important component of the rehabilitation outcome of elderly patients with neck of femur fractures.
femoral neck fractures. Acquiring baseline data about mental status at the time of admission using mini-mental test score and monitoring for changes in cognition throughout the course of hospitalization, has been reported earlier and is an essential part of nursing care plans. 2,3,12,13 This study demonstrates a clear relationship between cognitive impairment and the inability to recall the precautionary advice given to elderly patients with hip fractures following surgery. It is clear from the results that a patient with an impaired cognitive state admitted with a femoral neck fracture has a poor recollection and thus it seems superfluous to give full precautionary advice to them postoperatively rather than concentrating on more focused, effective and specific information relevant to everyday life that has significant impact on patient mobility and social independence. Few studies have met the design requirements needed to identify the need of anti dislocation advice when it really exists. Rigorously conducted studies provide evidence that poor recall of precautions by cognitively impaired patients does not make them more susceptible to have a postoperative hip dislocation as they are less likely to achieve the full level of independence after surgery. 1,8 Given that, further work needs to be done to determine how such changes in mental state over time can affect the recall of advice given to these patients during rehabilitation.

Our study presents the results of a small population of elderly hip fracture patients; however, there were several potential limitations that should be considered when interpreting the results of this study. We did not collect data on pre-morbid function, social support and the limiting comorbidity; factors, which previously have been related to morbidity and mortality. The predictive accuracy of our model might have been improved with these data. We did not find that delay in surgery influenced outcome, however we did not have an absolute measure of time to surgery that might have allowed us to make this association.

In conclusion, the results of this study indicate the importance of specific information given to hip fractures patients. It is interesting to note that fundamental and lasting changes in the quality of life only becomes apparent between 6 weeks and 6 months following hemiarthroplasty when the patient has had enough time to recuperate. Healthcare professionals, involved in the rehabilitation of patients following hemiarthroplasty, should bear in mind that patients with impaired cognitive state have poor recollection of standard advice given about dislocation. Therefore, re-evaluation of the nursing, occupational therapists and carers’ actions must be considered in order to improve the patients’ quality of life. Obviously, more prospective work needs to be done to determine the right components of the precautionary advice to prevent dislocation of new hip in elderly patients with impaired memory.

References


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<thead>
<tr>
<th>Table 2</th>
<th>Score (out of 10) in response to questionnaire</th>
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<tr>
<td>Groups</td>
<td>6th post-operative day</td>
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<tr>
<td>Group 1 (range)</td>
<td>6.2 ± 2.0 (3–9)</td>
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<tr>
<td>Group 2 (range)</td>
<td>3.3 ± 1.8 (1–5)</td>
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<td>Group 3 (range)</td>
<td>1.3 ± 0.8 (1–2)</td>
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* P < 0.05 vs. Groups I and II.
