

Recall of discharge advice given to patients with minor head injury presenting to a Singapore emergency department

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ABSTRACT

Introduction: Most patients presenting to the emergency department (ED) with minor head injury (HI) can be discharged, provided a caregiver is present and careful discharge instructions are given. The study ED uses an advice leaflet with verbal reinforcement to patients and caregivers detailing post-discharge instructions and warning symptoms of worsening HI. We aim to evaluate local patients' and caregivers' compliance to discharge instructions and their ability to recall HI advice.

Methods: A prospective study was conducted in an adult ED between April 10, 2006 and May 1, 2006. All patients with minor HI discharged from the ED or its 24-hour observation ward were included in the study. A telephone survey was conducted within 48 hours of discharge using a standardised questionnaire.

Results: During the study period, 292 patients had HI, of which 182 were eligible for the study. 71 were uncontactable and one refused to participate, leaving 110 patients in the study. Patients' age ranged between 7 and 109 years (median 41 years). 100 confirmed receiving HI advice (57 percent received by patients, 26 percent caregivers, 16 percent both patients and caregivers). 29 percent of respondents reported non-compliance to discharge advice. Mean HI-symptom recall score was 1.9 (SD 1.6) (total 9 symptoms). 30 percent cited other symptoms not part of the HI advice, which they believed necessitated a return to the ED. Recall scores were not statistically different, regardless of mode of instruction (verbal or printed) or the recipient (patient, caregiver or both).

Conclusion: Our study raises concerns about the reliability of discharge advice for minor HI patients.

Keywords: discharge advice, emergency department, minor head injury

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INTRODUCTION

Head injury can be classified into minor, moderate and severe.⁽¹⁾ While patients with moderate or severe head injuries are admitted to the hospital, most physicians agree that many patients with minor head injury can be managed at home, provided a caregiver is able to observe the patient, that careful instructions are given, and that social factors are considered.^(2,3) The success of this depends on a responsible caregiver being able to monitor the patient's condition and recognise important early warning symptoms and signs of deterioration. However, problems with discharge advice compliance have been reported in the literature. Coonley-Hoganson et al reported 66% of patients followed discharge instructions and that only 86% of the patients interviewed 48 hours after head trauma stated they understood the discharge instructions.⁽⁴⁾ Saunders et al noted that 19% of patients denied having received written after-care instructions, despite documentation to the contrary in the medical record; while two-thirds of patients interviewed exhibited poor recall with less than three out of eight warning symptoms remembered.⁽⁵⁾

The study emergency department (ED) has used a head injury advice leaflet for 15 years. The leaflet was drafted with input from the neurosurgical department and consists of two components. The first includes instructions to the caregiver about monitoring the patient in the immediate 24-hour post-injury period; and patient abstinence from activities which may be dangerous (driving) or confound the conscious level (drinking alcoholic beverages). The second includes a list of nine symptoms suggestive of worsening head injury, the presence of which would necessitate immediate return to the ED. The head injury advice leaflet is printed in the four major languages commonly

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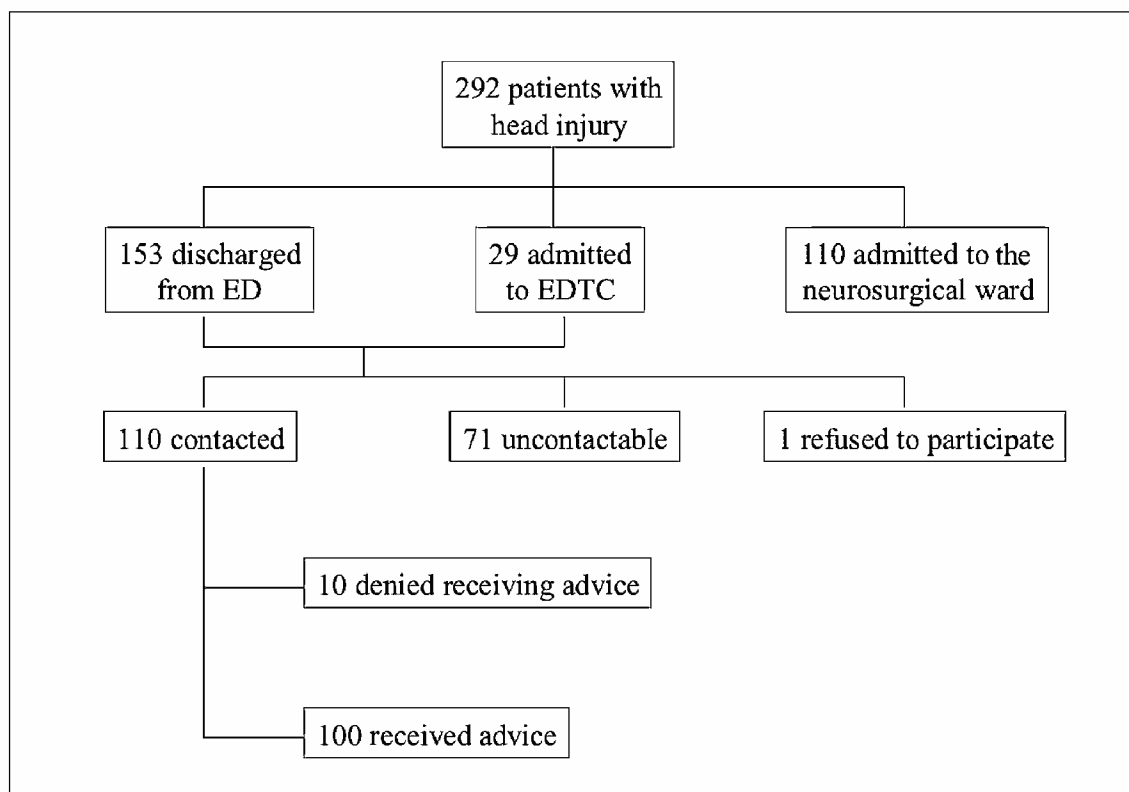


Fig. 1 Flow chart shows the selection process.

used in Singapore, i.e. english, chinese, malay and tamil, to cater to patients from different ethnic groups. Together with verbal explanation, this head injury advice leaflet is given to patients with minor head injury or their caregivers, at the point of discharge from the ED. The aim of this study is to evaluate our local patients' and caregivers' compliance and ability to recall head injury advice given to them after discharge from the ED.

METHODS

This was a prospective study conducted at Tan Tock Seng Hospital, an adult acute general hospital with 1,100 beds. The 2005 annual census of the study ED exceeds 132,000. The study ED has a 16-bed 24-hour observation ward known as the Emergency Diagnostic and Therapeutic Centre (EDTC). The study was conducted from April 10, 2006 to May 1, 2006. A pilot study was conducted to evaluate and revise the study questionnaire. Based on established clinical decision guidelines, head injury is classified as minor head injury if the patient's Glasgow Coma Scale at presentation is ≥ 13 , and there is no sign or symptom to suggest a more serious injury.⁽¹⁾ Subjects for the study came from this group of minor head injury patients. Among patients with minor head injury, those deemed unsuitable either for immediate discharge

or admission into a general ward were those with equivocal signs, advanced age or poor social support. They were transferred to the EDTC for further evaluation and observation, which included a head computed tomography. Those with minor head injury not transferred to EDTC were discharged directly from the ED. At the point of discharge, whether from ED or EDTC, verbal and printed head injury advice would be given to the patient and/or caregiver.

From the ED electronic patient record system, all patients diagnosed with minor head injury discharged within 24 hours of presentation to the study ED were included in the study. Exclusion criteria were: (1) patients whose head injury requires admission to the neurosurgical ward or immediate surgical intervention; (2) patients with significant concomitant injury to other body regions; and (3) patients from long-term care facility, e.g. nursing home. The institution review board approved this study. All patients fulfilling the inclusion criteria, or their caregivers, were contacted by telephone within 48 hours of discharge from the ED or EDTC. A telephone survey using a standardised questionnaire was administered. All attempts were made to interview the person who received the head injury advice. The subjects were considered "uncontactable" when the patient or caregiver could not be reached after three attempts within 48 hours,

or when no valid contact number was available in the electronic record system. Four of the authors (JSF, KYH, YHL and AL) administered the telephone survey.

The questionnaire was drafted, based on the head injury advice leaflet given to patients. The first part of the questionnaire asked about the patient's well-being and general symptoms. If the patient or caregiver reported that the patient was unwell, the patient was advised to return to the ED. The subject was also asked whether he/she received head injury advice upon discharge from the ED or EDTC. If the subject replied that he/she did not receive any head injury advice, the survey would be terminated. The second part assessed the patient's compliance to three instructions in the head injury advice leaflet, i.e. whether the patient had been left alone for more than two hours, whether the patient drank alcohol, or drove any vehicle within 24 hours after discharge. The third part assessed the patient's ability to recall the nine symptoms stated in the head injury advice leaflet. Each symptom correctly recalled was awarded one point, wrong or forgotten symptoms were scored a zero. The maximum score was nine. The interviewers also recorded symptoms mentioned by patients that were not part of the advice.

The data collected were age, gender, ethnic group, citizenship status, date and time of injury, mechanism of injury (namely, "fall", "assault", "road traffic accident" and "hit by falling object"), consumption of alcohol prior to injury, disposition from ED, patient or caregiver as interviewee, compliance with head injury instructions, total points scored by patient or caregiver, and other symptoms mentioned by patient or caregiver. Data was analysed using the Statistical Package for Social Sciences version 11.0 (SPSS Inc, Chicago, IL, USA). Categorical data was analysed with chi-square test, and scale data was analysed with Student's *t*-test.

RESULTS

A total of 292 patients had head injury, of which 182 were eligible for this survey. 71 were uncontactable, one refused to participate, and 110 participated in the study, contributing to a participation rate of 60% (Fig. 1). The ages of the patients ranged from seven to 109 years old, with a median age of 41 years. The demographical data of the subjects is shown in Table I. 110 eligible patients agreed to participate in the study, of which 100 (90.9%) confirmed receiving head injury advice. The remaining ten (9.1%) denied receiving any head injury advice from ED staff. Of the 100 patients, 11 (11.0%) said they were given verbal advice only, 37 (37%) were given printed advice only, and 52 (52%) were given both verbal and printed advice. Interviewees responded that head injury advice

Table I. Characteristics of patients discharged from the ED with minor head injury.

Characteristics	No. of patients (%) (n = 110)
Male	54 (49.1)
Race	
Chinese	76 (69.1)
Malay	17 (15.5)
Indian	9 (8.2)
Others	8 (7.3)
Age (years)	
< 25	24 (21.8)
25–44	34 (30.9)
45–64	29 (26.4)
≥ 65	23 (20.9)
Non-Singapore residents	15 (13.6)
Causes of head injury	
Fall	58 (52.7)
Assault	23 (20.9)
Struck by object	16 (14.5)
Road traffic accident	13 (11.8)

Table II. Frequency of recalled symptoms listed in head injury advice that necessitated a return visit to the ED.

Symptoms	No. of patients (%) (n = 100)
Persistent vomiting	64 (64)
Dizziness	53 (53)
Persistent headache	35 (35)
Visual problems	17 (17)
Drowsiness	17 (17)
Confusion	12 (12)
Speech problems	6 (6)
Focal weakness	5 (5)
Seizures	4 (4)

was given to the patient, caregiver, both patient and caregiver 57%, 26% and 16% of the time, respectively.

29% of respondents reported non-compliance to head injury advice. 19% of patients were left alone for more than two hours, 7% drove a vehicle and 3% drank alcohol within the immediate 24-hour period after the head injury. There was no statistically significant difference in compliance to head injury advice for age, sex, race or nationality. Out of a total of nine symptoms listed in the printed head injury advice necessitating return to ED, the maximum number recalled by respondents was six. The mean symptom recall score was 1.9, with a standard deviation of 1.6. The commonest symptoms that respondents recalled were "persistent vomiting" (64%), "dizziness" (53%) and "persistent headache" (35%) (Table II). The symptom least recalled by respondents was "seizures"

(4%). 30 respondents cited other symptoms, such as “fever”, “numbness”, “pain”, “feeling cold”, “tinnitus”, “sore throat”, and “cold sweats”, that were not part of the head injury advice, which they believed necessitated a return to the ED.

The respondent’s recall scores were not statistically different regardless of whether the discharge advice was given verbally, in printed form, or a combination of both methods. Also, the scores were not statistically different regardless of whether the advice was given to the patient, the caregiver or both patient and caregiver. However, the mean recall scores of patients who were discharged from EDTC were higher than those discharged from ED (2.1 versus 1.9, $p < 0.05$). Mean recall scores were higher among females, compared to males (2.3 versus 1.6, $p = 0.024$). There was no statistically significant difference in recall scores for the different ages, races or nationalities. No patients deteriorated or re-presented at the hospital during the study period.

DISCUSSION

Outpatient care for patients with minor head injury is dependent on the patient’s relatives and caregivers being able to monitor the patient and recognise danger symptoms signifying worsening head injury, necessitating a return to the ED for further evaluation. The practice of discharging minor head injury patients with advice is a common practice in EDs in Singapore and around the world. Our study shows that 29% of those who received the head injury advice were non-compliant with instructions. The majority was not able to recall more than two out of nine symptoms in the head injury advice. Two possible reasons for this finding are that the caregivers did not understand the discharge advice or they did not bother to review the leaflet. It is also possible that some patients may be illiterate, which is why verbal reinforcement is usually given. Findings in our local population are consistent with that of international studies. The high percentage of “wrong” symptoms recalled is probably related

to the caregivers’ multicultural backgrounds and belief systems, which determine what they believe to constitute symptoms of worsening head injury.

A limitation of our study was that 39% of patients who qualified for the study were uncontactable. 38% of these were non-resident unskilled or semi-skilled work-permit holders who did not have a telephone. It is likely that inclusion of this cohort of patients would have accentuated the findings of poor recall and non-compliance to head injury advice. However, it may be argued that poor recall may not equate to poor care as it is conceivable that even though the caregiver may not be able to remember specific symptoms listed in the advice leaflet, they may be able to recognise when something is amiss and bring the patient back to the ED.

It is evident from the higher recall scores among EDTC-discharged patients that perhaps having more time to explain the discharge advice to the patient in a ward setting translated to better recall. In order to mitigate this variability in discharge aftercare, we recommend that next-day follow-up be arranged with the patient’s family physician. Also, ED-initiated follow-up calls to these patients may be a good opportunity to reinforce the discharge instructions and answer queries. Our study raises concerns about the reliability of the current use of discharge advice for minor head injured patients. More needs to be done to optimise outpatient care for these head-injured patients.

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