ORIGINAL ARTICLE

A survey of information given to head-injured patients on direct discharge from emergency departments in Scotland

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Emerg Med J 2007;24:330–332. doi: 10.1136/emj.2006.044230

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Accepted 2 February 2007

Aim: To survey the information provided to head-injured patients on discharge from emergency departments (EDs) in Scotland.

Methods: EDs throughout Scotland were asked to supply a copy of their head injury advice pamphlet for analysis. Each pamphlet was assessed against a template and an Excel spreadsheet was created.

Results: All 30 (100%) Scottish EDs responded. The frequency with which specific features appeared varied widely, with most pamphlets concentrating on emergency features, with less emphasis on postconcussion symptoms.

Conclusions: Head injury discharge advice should be standardised throughout EDs, with more emphasis given to postconcussion features.

Out of a population of 100 000, 1800 people attend hospital as a result of a head injury each year, and of these about 300 are admitted.¹ This figure has recently been confirmed in Glasgow (total population 900 000) where 2962 admissions for head injury to five hospitals in one year were identified.² The majority of head injuries had Glasgow Coma Scale scores of 14–15 and were classified as mild or minor head injuries (MHIs). Patients discharged directly from emergency departments (EDs) after MHIs are usually given some written information on what to do if new symptoms develop. The content of these discharge pamphlets given to patients with MHIs has tended to focus on physical complications such as loss of consciousness, persistent vomiting or the development of seizures. However, it is being increasingly recognised that patients with MHIs are at risk of postconcussion features that can affect their behaviour and cognitive functioning.² While the majority of cases are appropriately classified as mild or moderate in terms of the threat to life, there is rising awareness that a large proportion of cases so categorised have significant problems in the ensuing weeks and months.^{2–5} This project was aimed at surveying the information provided on discharge to patients who sustained MHIs throughout Scotland. This involved determining whether psychological and social factors were noted, and whether guidance was included to enable patients to locate help for these problems.

METHODS

Copies of discharge advice leaflets were requested from the 27 EDs in Scotland, as well as from the 3 dedicated children's EDs. Where there was a Scottish Trauma Audit Group co-ordinator related to a particular department, she or he was requested to send the information to the principal researcher directly, after first seeking consent from the department's lead consultant. If there was no Scottish Trauma Audit Group co-ordinator in place, then a letter was sent to the lead consultant, asking him or her to forward the information. On three occasions the principal researcher travelled to the department to obtain the pamphlet first-hand.

Where a department routinely sees both adult and paediatric patients, the department was asked to provide copies of each pamphlet issued. A list of points was made that would be expected to appear in the "ideal" pamphlet, as recommended

by the Scottish Intercollegiate Guidelines Network guidelines no. 46—"Early management of patients with a head injury".⁶ In addition to the Scottish Intercollegiate Guidelines Network recommendations, we added further items that might feature in a patient experiencing postconcussion syndrome (PCS), as suggested by the Rivermead postconcussion questionnaire.⁷ Each pamphlet was then assessed against this template and an Excel spreadsheet was created that detailed all aspects of a given department's advice sheet. For every feature listed in the pamphlet, a score of one point was awarded; scores were then tallied up for each feature.

RESULTS

Discharge advice leaflets were obtained for all 30 EDs (100% return). Of these, 27 departments see either adults or a mix of adults and children; 3 of the 30 departments are dedicated children's EDs. As well as the dedicated children's hospitals, a further 17 hospitals issued specific children's pamphlets, making a total of 20. All 20 pamphlets were received and analysed.

Figures given are the number of times a specific symptom/complaint is featured (with percentages given in brackets) in the total of 27 adult and 20 children's pamphlets. Table 1 summarises the features that would constitute a postinjury emergency complication requiring immediate consultation. Table 2 relates to those features that may occur in relation to PCS. Each feature is listed as being included in a pamphlet only if it appears in the form as shown in each table; the authors have not given an "interpretation" to any terms used in the pamphlets.

A time frame was given for emergency features in 16 (59%) of the pamphlets given to adults and in 10 (50%) of the written information issued to parents/carers of head-injured children. A separate postconcussion section was present in 16 (59%) of the pamphlets for adults and in 4 (20%) of children's. A time frame for PCS was given in 13 (48%) of adult and in 3 (15%) of children's cases.

Abbreviations: ED, emergency department; MHI, mild head injury; PCS, postconcussion syndrome

Table 1 Emergency features and management

		Adults (total = 27) n (%)	Children (total = 20) n (%)
1.	Features of deteriorating GCS		
a.	Loss of consciousness	13 (48)	2 (10)
b.	Drowsiness/sleepiness	18 (67)	13 (65)
c.	Disorientation	4 (15)	4 (20)
d.	Confusion	18 (67)	12 (60)
e.	Normal breathing pattern	N/A	7 (35)
f.	Normal response to parent/carer	N/A	8 (40)
2.	Features of increased ICP		
a.	Persistent nausea	1 (4)	0 (0)
b.	Vomiting	26 (96)	19 (95)
c.	Headache unrelieved by analgesia	25 (93)	18 (90)
d.	Fits/seizures	20 (74)	13 (65)
3.	Focal neurological features		
a.	Weakness	14 (52)	11 (55)
b.	Alteration in sensation	10 (37)	0 (0)
c.	Change in vision	22 (81)	10 (50)
d.	Problems with balance	4 (15)	0 (0)
4.	Evidence of a base of skull fracture		
a.	fluid/blood out of ears/nose	13 (48)	9 (45)
5.	Neuropsychological impairment		
a.	Change in behaviour	6 (22)	13 (65)
b.	Slurring/problems with speech	0 (0)	0 (0)

GCS, Glasgow Coma Scale; ICP, intracranial pressure; N/A, not applicable.

DISCUSSION

It is clear from the results that EDs vary widely in the discharge information given to patients with a minor head injury. Examining the pamphlets for the purpose of the study revealed that some are comprehensive and aim to cover a wide range of features, whereas others are sparse and list only the more severe emergency features. Additionally, some pamphlets give an itemised list of the important features, whereas others are written in a conversational prose style. Undoubtedly, some individuals will prefer one style over the other, and commenting on this is not the purpose of this study. However, it is worth considering the way the information is packaged, given that the pamphlet is issued to a head-injured individual or, ideally, a responsible adult. Certainly it appears that, regardless of schooling and social demographics, most patients prefer discharge advice that is written in very simple terms.⁸

In terms of specific content, the majority of advice sheets contain information on emergency features, with the most common being persistent headache (93%), persistent vomiting (96%) and change in vision (81%). Most departments advise the patient to attend for follow-up with the department itself (93%) and include their direct dial telephone number (89%). What is also clear is that these pamphlets do not put the same emphasis on postconcussion features. Mild headache, irritability and return-to-work problems feature far less frequently, and the availability of any service to address these problems is rarely mentioned. This is concerning, as a conservative estimate is that about 20% of MHI cases admitted to hospital will have significant problems after discharge,⁵ although some studies suggest the incidence is much higher.² Additionally, even less emphasis is given to the potential for postconcussion features in the children's pamphlets, even though recent work has shown that, in this group of patients, a significant proportion will experience moderate disability at follow-up.⁹ As with the adult data, it appears that children sustaining a head injury that would be classified as being within the "good outcome" group in the Glasgow Outcome Scale often appear to have significant morphological and functional brain deficits.¹⁰

Figures vary on the incidence of intracranial haemorrhage and focal brain injury in those who re-present to EDs after

Table 2 Features of postconcussion syndrome

	Adults (total = 27) n (%)	Children (total = 20) n (%)
1. Mild headache	17 (63)	8 (40)
2. Dizziness	18 (67)	1 (5)
3. Memory disturbance	12 (44)	0 (0)
4. Concentration problems	16 (59)	4 (20)
5. Irritability	15 (56)	7 (35)
6. Tiredness	15 (56)	7 (35)
7. Sleep disturbance	10 (37)	3 (15)
8. Return to work/school problems	3 (11)	3 (15)
9. Problems at home	1 (4)	2 (10)
10. Social difficulties	10 (37)	2 (10)
11. Avoids stressful/noisy situations	7 (26)	0 (0)

having been previously discharged with an MHI, but some studies estimate this incidence to be 7–14%.¹¹ However, if one compares this with the frequency with which patients experience postconcussion features, it is worth considering whether this section of the discharge advice pamphlet should feature on a more consistent basis. The fact that, in the majority of cases of MHI, the psychological effects are the most disruptive for the individual and his or her family's lives has resulted in the recommendation that head injury should be regarded as a priority for mental health services in two authoritative reports.^{12, 13}

In view of the large number of individuals with MHIs it may be impractical to offer follow-up in all cases. Indeed, controlled trials have questioned the value of such an approach.^{14, 15} The principal concern of the emergency physician and the aim of written discharge information is to alert patients to the potentially life-threatening complications of head injury. However, as the emergency doctor might be the only physician the patient with MHI encounters, we would suggest that discharge pamphlets should include a list of specific postconcussion features with information and advice on how and where to obtain help if these features develop. Obviously a clear distinction should be made between the "emergency" section of the pamphlet and the post-concussion section so that patients do not contact a rehabilitation facility if they are experiencing features of an intracranial haematoma. One option would be to include a modified version of the Rivermead post-concussion questionnaire⁷ in this section of every pamphlet. The postconcussion questionnaire requires

Table 3 Advice given on management of patient at home

	Adults (total = 27) n (%)	Children (total = 20) n (%)
1. Alcohol abstinence	22 (81)	N/A
2. Resting/sleeping	21 (78)	10 (50)
3. Medication—avoid sedatives/sleeping tablets	13 (48)	N/A
4. Avoid contact sports	12 (44)	6 (30)
5. Appropriate analgesia	14 (52)	14 (70)
6. Avoid operating machinery	4 (15)	N/A
7. Avoid driving	9 (33)	N/A
8. Time frame—avoid alcohol/operating machinery	11 (41)	N/A
9. Advice to stay with relatives/friends	20 (74)	N/A
10. Advice to carer/friend to test responsiveness	8 (30)	N/A
11. Advice to parent/carer to observe child	N/A	10 (20)
12. Advice to parent/carer to wake child fully to assess responsiveness	N/A	14 (70)

N/A, not applicable.

Table 4 What to do if any problems arise

	Adults (total = 27) n (%)	Children (total = 20) n (%)
1. Follow-up with GP	15 (56)	9 (45)
2. Follow-up with Headway	0 (0)	0 (0)
3. Follow-up with rehabilitation/brain injury centre	3 (11)	0 (0)
4. Follow-up with ED	25 (93)	19 (95)
5. Telephone number of ED given	24 (89)	18 (90)

ED, emergency department; GP, general practitioner.

patients to compare how they are feeling pre-injury and postinjury in terms of a number of specific complaints that would suggest a diagnosis of PCS. If a patient were experiencing difficulties, he or she would be invited to attend for follow-up, either at his or her own general practitioner's practice or to a dedicated rehabilitation facility. In this respect, their referral to rehabilitation services would be done on the basis of a validated questionnaire. General practitioners and emergency physicians could easily use this to determine whether a patient should be followed up by such services. The availability of specific head-injury rehabilitation services in Scotland is very variable, and in some instances the contact details for social work, voluntary and other agencies might be appropriate.¹²

Previous studies¹⁶ have highlighted the need for a standardised pamphlet that could be used nationwide and would avoid any confusion over who was to provide follow-up of this group of patients. We would reinforce this idea and emphasise the need for a standardised pamphlet to include more emphasis on postconcussion features.

ACKNOWLEDGEMENTS

We thank Diana Beard, Director of the Scottish Trauma Audit Group (STAG), for liaising with all the STAG coordinators and for their cooperation with forwarding the pamphlets; Stephen Allen for his invaluable help with inputting the data; and Dr Peter Freeland for his suggestions about the pamphlet's design.

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