Diagnostic criteria and the use of ICD-10 codes to define and classify minor head injury

J Bellner, S-M Jensen, J Lexell, B Romner

Background: Epidemiological research on the incidence of traumatic head injuries relies on the correct definition and classification of the injury.

Objective: To address the use of diagnostic criteria and ICD-10 codes to define minor head injury in Swedish hospitals managing patients with head injury.

Methods: A questionnaire was mailed to all 76 Swedish hospitals managing head injuries. The hospitals were asked what diagnostic criteria they use to define minor head injury, and which ICD-10 codes they use to classify such injuries.

Results: 72 hospitals (95%) responded to the survey. The most common criterion was loss of consciousness (76%), followed by post-traumatic amnesia (38%). Almost half the hospitals used other signs and symptoms to define minor head injury. The ICD-10 code S.06 (intracranial injury) was used by 51 of the hospitals (91%).

Conclusions: It is essential that there should be common definitions, classifications, and registration of minor head injuries. The wide variation in definition and classification found in this study emphasizes the importance of improved implementation of the present guidelines.

RESULTS

Diagnostic criteria

In all, 64 hospitals listed the diagnostic criteria they use to define minor head injury. Eight hospitals (11%) did not respond to this question. The diagnostic criteria and the frequency with which they were used are presented in table 1. The most common criterion was loss of consciousness (76%), followed by post-traumatic amnesia (38%). The absence of focal neurological deficits and the reaction level scale (RLS) score or the GCS score were listed by less than 10% of the hospitals.

ICD-10 codes

In table 2 we list the different ICD-10 codes, together with the definitions, that are used to classify minor head injury. The intracranial injury S.06 ICD-10 code was used by 51 of the hospitals (91%).

Abbreviations: GCS, Glasgow coma scale; RLS, reaction level scale.
ICD-10 code S.06 was used by 51 of the hospitals (91%). Forty
five of the hospitals (80%) used this code exclusively. Six hos-
pitals (11%) used S.06 combined with other ICD-10 codes.
Five hospitals (9%) did not use the code S.06; one used only
S.00 and S.01; one used only S.02; and three used only S.09.
Sixteen hospitals (22%) did not respond to the question.

DISCUSSION
Our results show an inconsistencies in the definition of minor
head injury but a fairly consistent use of ICD-10 code to clas-
sify such injuries.

“Minimal head injury” is defined as GCS 15 without loss of
consciousness. “Mild head injury” is defined as GCS 14–15
and/or loss of consciousness for less than five minutes without
neurological deficit. “Minor head injury” is defined as a GCS
score of 15, with no loss of consciousness. Post-traumatic
amnesia may be present, together with various other signs and
symptoms. Patients presenting with a GCS score of 13 are
classified as having moderate head injury. In the definition
and classification of sports related cerebral concussion, it is
stressed that any form of disturbance of mental status is to be
considered a head injury. In the present study, the most common criterion was loss of
consciousness, followed by post-traumatic amnesia, both of
which may be absent following a minor head injury. Almost
half the hospitals used other signs and symptoms to define
minor head injury.

The correct use of ICD-10 codes to classify head injuries is
imperative to enable stringent epidemiological studies to be
done. Among the 72 Swedish hospitals that responded to the
questionnaire, a large majority (91%) used the code S.06.
Non-specific codes related to injuries to the skull, neck, and
face were used by only five hospitals (9%). The use of S.06 is
more common than previously reported. A recent study has
compared data from an accident and emergency department
case register on all head injury admissions with the list
collected from the health authority’s central database using
the ICD-10 codes. Using the ICD-10 codes, less than 50% of all
head injured admissions could be detected. A previous study
also found that nearly two thirds of head injuries selected by
the ICD codes were excluded when the medical records were
reviewed.

In the Scandinavian countries most patients with head
injuries are treated in the smaller hospitals, usually by general
surgeons. The distance to the regional neurosurgical depart-
ment may be long. Thus it is essential that there should be
common definitions, classifications, and registration of minor
head injuries. Recently published guidelines address this
problem. However, the value of such guidelines lies in their
widespread use, not only in neurotrauma centres but also in
smaller general hospitals. The present study emphasises the
importance of improved implementation of the present
guidelines.

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COMPETING INTERESTS: none declared

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J Neurol Neurosurg Psychiatry 2003 74: 351-352
doi: 10.1136/jnnp.74.3.351

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