

Clinical Controversies: Head Injury

In Israel, emergency medicine is a new specialty and as such still has many practitioners of other disciplines working in many EDs. As such, we are very protocol driven in this country and the neurosurgical society has created a mild head injury protocol. This protocol was translated into English and appears at the end of this introduction. We turned to many people to critique this protocol, with many different responses. Dr. Zucker, our editor of emergency radiology and a NEXUS member, who are currently prospectively reviewing this subject and Dr. Marik from the critical care unit at Allegheny felt that the protocol was well written. Others, such as Peter Viciellio of SUNY-Stoneybrook, who lectured on this subject at the ACEP Scientific Assembly ten years ago, felt no comment could be made on a protocol with out any references. Indeed, this document is the consensus of well meaning experts in the field. Ian Stiell of Ottawa, author of the Ottawa ankle rules and others, has recently validated his rule. His rules are reproduced below as well. Presently, the New Orleans criteria and the NEXUS criteria are being validated. I do not have these criteria as yet. We have two Israelis who will comment on this rule, Dr. Lisa Amir, FAAP, FACEP assistant director of the Schneider Children's Hospital ED and Dr. Zev Feldman, a pediatric neurosurgeon at Tel HaShomer.

The Israeli Head Injury Guidelines

- 1) Definitions:
 - a) Concussion: A situation where there is a loss of consciousness (LOC) after head trauma with accompanying memory disturbance.
 - b) Superficial Head Injury (SHI) : A situation where, following head trauma, there is a clear sensorium and no neurological deficit.
- 2) Historical elements that indicate a higher risk:
 - a) confusion or amnesia to particulars not related to the traumatic event (this includes a clouded sensorium due to alcohol, drugs, and medications).
 - b) increasing headache.
 - c) vomiting that resolves and relapses.
 - d) wide scalp lacerations due to a sharp mechanism.
 - e) depressed skull fracture, as well as suspected basilar skull fracture or suspected facial fracture.
 - f) congenital, acquired or medication induced coagulation delays.
 - g) inability to correctly assess the status of the patient.
 - h) head injury under unknown circumstances.
 - i) questionable ability to continue care at home.
- 3) Additional Danger Signs.
 - a) head injury below age 2 or above age 70.
- 4) Guidelines for imaging.
 - a) CT is recommended to image the patients that have the danger signs in paragraph 2 above.
 - b) If CT is not performed, then observation must be performed.
 - c) Skull films in general are not indicated.

- 5) Clinical Guidelines for Neurological/Neurosurgical Consultation in the ED:
Recommended in the following cases:
- Depressed level of consciousness.
 - Historical or physical exam indicators of neurological deficit.
 - A pathological finding on imaging.
 - A patient with a change in level of consciousness without pathological finding on imaging and without neurological findings.

NOTE:

- The hospital administration will be responsible to assure the patient is adequately assessed by the most expert physician available after receiving approvals from departmental heads of EM, Neurology and Neurosurgery.
 - A level one trauma center will deal with all questions in these matters.
- 6) Guidelines for Releasing Head Trauma Patients from the ED.
- Any patient that has no signs of concussion or one of the danger signs listed in paragraph 2 above.
 - The patient has undergone CT - it is completely normal and there are adequate assessment possibilities at home.
- 6a) Guidelines for In House Observation of Head Injured Patients.
- Patients who have the risks enumerated in paragraph 2) above and have not undergone imaging.
 - A patient with less than 15 GCS who has a normal CT.
 - All such patients will be observed in the neurosurgical unit or according to the decision of the administration or traumatologist attending - in a unit that can adequately deal with trauma. Children should be admitted to a children's ward or to a children's surgical ward.

NOTE: Patients that are discharged must be given adequate instructions for follow up.

- 6a) Guidelines for Patients to be Sent to Hospitals with Neurosurgical facilities.

- GCS less than 15 and no CT facilities.
- A head injury which is not superficial.

NOTE: Initial assessment should be done at the referring hospital while awaiting transfer assuming the transfer and the assessment will not endanger life.

The Canadian CT Head Injury Rule for Patients with Minor Head Injury

Major Criteria

- Failure to reach GCS of 15 within two hours
- Suspected open skull fracture
- Any sign of basal skull fracture
- Vomiting $>$ or $=$ 2
- Age greater than 65

Minor Criteria

- Amnesia before impact of $>$ 30 minutes
- Dangerous mechanism of injury

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