Best evidence topic: Warfarinised patients with minor head injury

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Clinical scenario

A 70-year-old lady, on warfarin for atrial fibrillation, slipped and fell with minor contusion of her forehead. There was no loss of consciousness nor any neurological deficits. The question you ask yourself now is whether computerised tomogram of brain (CT brain) is indicated to exclude intracranial haemorrhage.

Three part question

For (patients on warfarin with minor head injury) is (routine CT brain) indicated to exclude (intracranial haemorrhage)?

Search strategy

Medline 1960 to 12/1999 using the OVID interface. (exp warfarin) and (exp cerebral haemorrhage or exp Head injuries or exp subarachnoid hemorrhage or exp tomography, x ray computed or intracranial haemorrhage mp.)

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Search outcome

Eight articles were found of which only three were relevant to the study question. Two papers were case reports and one was a retrospective case series. The 3 papers are summarised in Table 1.

Comments

All the available papers have methodological inadequacies. The inadequacies are related to the lack of a clear definition of minor head injury; incomplete description of the injury event to delineate whether the injury is the cause of intracranial bleeding or vice versa. Prognostic factors, like prothrombin time and the Glasgow Coma Score, were not studied in depth to guide the decision to perform CT brain in this group of patients. Therefore, a good designed prospective study on this issue is needed.

Clinical bottom line

The 95% confidence interval for the risk of intracranial complication based on the retrospective series was 0.2-7%. Current evidence supports that there is a small but genuine risk of intracranial bleeding for warfarinised patients with minor head injury. The role of routine CT brain for such a small risk is unanswered by the current medical literature. Guidelines on indication of CT brain in warfarinised head trauma patient is also lacking.

Table 1.

Author, date, and country	Patients group	Level of evidence	Outcome	Key results	Study weakness
Saab et al, 1996, UK.[1]	Case report on two warfarinised head trauma patients.	Case report	Intracranial bleeding. Mortality.	Both patients had intracranial haemorrhage. One survived after surgery and one died.	The patient who died had INR of 4.2. It was difficult to delineate whether it was a spontaneous bleeding or bleeding secondary to head injury.
Volans, 1997 UK.[2]	It was a summary of 2 previous published paper [1,3] with the addition of 3 more patients to form a small series of 11 patients.	Case report	Intracranial bleeding. Mortality.	Three patients survived and eight patients died. Eight patients had either loss of consciousness or focal neurological deficit on presentation. Six patients had INR greater than 3 (range 3.4 - 10.6).	Eight patients shall not be classified as suffering from minor head injury, if minor head injury is defined as no loss of consciousness or no focal neurological deficit.
Garra, 1999, USA.[4]	65 patients on warfarin with minor head injury (defined as head injury without loss of consciousness and neurological abnormality) presented to the 6 community hospitals (included one level 1 major trauma center) in New Jersey.	Retrospective case series	Intracranial bleeding.	Thirty nine patients had undergone CT brain examinations, which revealed no abnormalities. Twenty six patients were followed up through telephone interview for complications or rehospitalization. None of the 65 patients had objective evidence of intracranial haemorrhage. Only 38 patients had clotting profile checked. The prothrombin times range from 12 to 30.7s.	Selection bias was possible. The significance of prognostic factors such as INR and Glasgow coma score on the risk for intracranial bleeding was not well defined.

References

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2. Volans AP. The risks of minor head injury in the warfarinised patient. J Accid Emerg Med 1998;15(3): 159-61.
3. Pople IK, Stranjalis G, Nelson R. Anticoagulant-related intracranial haemorrhage. Br J Hosp Med 1993;49(6):428-9.
4. Garra G, Nashed AH, Capobianco L. Minor head trauma in anticoagulated patients. Acad Emerg Med 1999;6(2):121-4.