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SERUM S100-B AS A TOOL TO PREDICT COMPUTED CRANIAL TOMOGRAPHY FINDINGS IN MILD BRAIN INJURY

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Background Minor head injury (MHI) has a high incidence and implies a risk of brain injury. Cranial computed tomography (CCT) is recommended for early detection of these lesions. However the indication of CCT is based on non specific clinical symptoms. Protein S100-B was then suggested as a promising tool to identify those patients with no risk of cranial injury.

Objective To evaluate S100-B as a screening tool in the management of MHI.

Methods Patients attending Bordeaux emergency department with an isolated MHI were consecutively included during 15 months. Blood samples were drawn within 6 h after head injury to assess S100-B level.

Results 1559 patients were included. CCT was indicative of cranial injury in 112 patients (7%). At the threshold of 0.10 g/l, S100B has a sensitivity of 99% (95% CI 95 to 100),

a specificity of 12% (11–14) and a negative predictive value (NPV) of 99% (97–100) as compared with CCT results. 12% of the patients has a S110-B level below this threshold and therefore could have been discharged with CCT. A threshold of 0.12 μ g/L proved however to be the best compromise between sensitivity (99%), specificity (20%) and a NPV of 99.7% (98–100) with CCT potentially avoided for 19% of the patients.

Discussion Early determination of S100-B blood levels is highly sensitive to detect CCT abnormalities. The threshold of 0.12μ g/L was the best compromise between sensitivity and specificity in our study.