Reviewer’s report

Title: Clinical validation of S100B use in management of mild head injury

Version: 2 Date: 4 September 2012

Reviewer: Vincent Sapin

Reviewer’s report:

The interest for S100B protein blood levels determination during the management of adults suffering mild head injury is well reported in several studies and also in few reviews and meta-analysis. Nevertheless, the use of blood S100B protein determination was never described in a real-life management. In this context, and in order to include S100B in “evidence based medicine”, the authors proposed the description of their real clinical practice to manage adult mild head injury using for the first time S100B determination. They confirm the efficiency and utility of this biomarker by obtaining similar data in terms of hospitalizations or scanner’s reduction, specificity and negative predictive value (reported supplemental table 2). The presented study clearly encourages other medical emergency team to use S100B in their practice.

However, some questions and points had to be precised and/or answered to clarify the proposed manuscript:

~ page 4: the sentence is too categorical concerning the weak evidence for S100B use in mild children brain injury in regard to recent publications on this paediatric field of S100B application.

~ page 4: the authors well possessed the number of the patients coming to emergency department in their hospital for mild head injury per day, month and year. Why the authors did not realize a sample size calculation to be able to answer to the objectives of their study.

~ page 6: the inclusion concerns 565 patients during 2.5 years, which could be considered as low compared to the reference studies previously published. How do the authors explain this point and could the exclude any selection bias?

~ the figure 1 is not clear. After a mild head injury and a blood S100B concentration > 0.1 µG/l, why the dotted arrow did not rejoin the “in-hospital observation” also resulting from an abnormal CT called “CT pathology”? Why did you maintain a dotted/secondary choice increasing the low compliance?

~ page 8: it will be very interesting to have the exhaustive listing of the reasons inducing a medical clinical judgement not following the proposed the guidelines based on the S100B concentration.

~ Even if we well noted (in the cover letter) that another paper will be focused on medico-economic aspect of this study, it will be also very interesting, for this
study, to calculate the cost of such absence of compliance with the S100B algorithm. This economic point could be also a good argument to respect in the future the guidelines based on S100B.

Minor point to check:

~ page 2: the authors used the abbreviation CT (line 9) before to define it (line 14).

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

**Statistical review:** Yes, and I have assessed the statistics in my report.