Reviewer's report

Title: The etiology and outcome of non-traumatic coma in an acute medical setting: a systematic review.

Version: 1 Date: 13 December 2014

Reviewer: Courtney Maxey-Jones

Reviewer's report:

Major Compulsory Revisions:

1. The title states the setting as “acute medical setting.” Throughout the article references are made to the emergency department setting. Reviewing Table 1 indicates that about half of the papers are in an ICU setting. Defining an acute medical setting as ED or ICU and then referencing both the ICU and ED equally throughout the article would clarify this issue. In the limitations section the hospital setting as related to academic versus urban and geographic location is discussed, but the physical setting within the hospital is not discussed. It is possible that the etiology on NTC in the ICU population (new hospital admissions and transfers of already hospitalized patients) could vary significantly from etiology and mortality of patients presenting from the community to the ED. This issue should be discussed in the limitations setting.

2. There are several discrepancies between the percentages mentioned in the abstract, results, and discussion sections and what is found in the Tables. Examples include:

A. Stroke etiology discrepancy: abstract, results (6-51%); results, non-traumatic coma etiology, first paragraph (6-54%); Table 2 (6-54%)

B. Hypoxia-ischemia/postanoxic coma/circulatory/hypoxic ischemia etiology discrepancy: abstract, results (hypoxia-ischemia 7-42%); results, non-traumatic coma etiology, first paragraph (postanoxic coma range: 3-42%); Table 2 (Circulatory/hypoxic ischemia 3-42%). Additionally, the variable nomenclature used may cause confusion.

C. Poisoning etiology discrepancy: abstract, results (4-39%); results, non-traumatic coma etiology, first paragraph (4-39%); discussion, coma etiology, third paragraph (<1-39% ); Table 2 (<1-39%).

D. Metabolic causes etiology discrepancy: abstract, results sections (4-22%); results, not traumatic coma etiology, first paragraph (4-22%); Table 2 (1-29% (if you exclude the 31% from Ecquevin (because of its inclusion of other etiologies in within metabolic)). Reference is made to the Hamel study in the results non-traumatic coma etiology but it is not clearly stated why Hamel's low metabolic and poisoning cause was excluded from consideration.
E. Structural vs. non-structural etiology discrepancy: results, non-traumatic coma etiology, second paragraph (structural 28-64% and non-structural 37-75%); Table 2 (structural 10-64% and non-structural 37-93%). It is mentioned about Weiss’s low structural prevalence, but not stated clearly why it is excluded from consideration.

F. Overall mortality discrepancy: abstract, results (25-69%); results, outcome, first paragraph (25-69%); Table 1 (25-87%). It is not clearly stated why Greer et al.’s mortality of 87% is excluded from the range.

G. Hypoxic-ischemia mortality discrepancy: abstract, results (54-89%); results, outcome, first paragraph (50-89%); discussion, coma etiology, second paragraph (50-89%); table 3 (50-89%).

H. Poisoning mortality discrepancy: abstract, results (0-7%); results, outcome, first paragraph (0-7%); Table 3 (0-67%).

I. Epilepsy mortality discrepancy: abstract, results (<1-10%); results, outcome, first paragraph (0-10%); Table 3 (0-10%).

A thorough review of all data in the Tables provided compared to the data discussed in the abstract, results, and discussion is necessary. If specific study’s findings are excluded, clear reasoning why should be presented.

Minor Essential Revisions:

1. The word “and” should be added between the words “hypothermia,”)” and “hepatic” in the methods, selection of studies, second paragraph.

Discretionary Revisions:

1. The abstract, background mentions “the most useful diagnostics in early evaluation.” The use of this phrase may cause confusion as there is no discussion of diagnostics within the article itself.

2. The background mentions “psychogenic unresponsiveness” as an etiology to NTC. It is unclear if this is an entirely separate entity which is not addressed by this review or if this would fall under the non-structural causes discussed through the remainder of the article.

3. In the methods selection of studies section the second paragraph (“Non-traumatic causes of coma can be subdivided…”) would be more applicable if placed in the background section. This may also help to clarify #2 of the discretionary revisions.

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.
Declaration of competing interests:

I declare that I have no competing interests.