Reviewer's report

Title: What is the easier and more reliable dose calculation for iv Phenytoin in children at risk for developing convulsive status epilepticus, 18 mg/kg or 20 mg/kg?

Version: 1 Date: 2 February 2013

Reviewer: arif khan

Reviewer's report:

The authors have clearly stated their aims and the sample size is justified. There are some interesting observations in this paper which have been clearly highlighted.

1) The question that the authors are trying to answer is well defined. However, the strength of recommendation for change of practice has to be based on both the ease of calculation and pharmacological evidence of benefit. They have tried to look at the ease of calculation and time taken for calculating a 20mg/kg dose as compared to 18 mg/kg. In manual calculation, it is a known fact that multiples of ‘10’ are easier to use in calculations than other numbers, but the authors have attempted to quantify these. They have clearly stated their objectives in the title and the abstract.

2) minor essential revision: The method they have selected is appropriate for such a study but further detail of the methodology is required. They need to expand on ‘randomized order’. If an individual is asked to calculate the dose using 18mg/kg and subsequently for 20 mg/kg then there will be an effect of the time between the two calculations on the eventual time taken to calculate the 2nd dose.

3) The data is sound and well described using histograms and scatter diagram.

4) discretionary revisions: The discussion is well balanced but needs some references.
   a) Paragraph 6 – The iv infusion of phenytoin does............ (needs referencing)
   b) Paragraph 7 – It is well known that many hospitals local guidelines advocate......... (referencing).
   c) Paragraph 7 – To the best of or knowledge there have been no reports suggesting an increased risk...... (Are there any studies?)
   d) Paragraph 8 (change suggested) - For this educational exercise, only calculation errors greater than 10% of the actual correct dose were counted as significant errors.
   e) Paragraph 9 – The significant error rate.....which is the current recommended dose. (This is not the currently recommended dose in APLS). Therefore this sentence will have to be corrected.
f) Paragraph 13 – Recently in the latest ……..(The authors need to state which other guidelines should adopt this recommendations)

5) minor essential revision: Limitations of the study need to be stated. Especially, the fact that the test was done in an entirely different environment to an emergency department and in a slightly more relaxed situation. Pharmacological literature on phenytoin dose of 20 mg/kg has not been explored.

6) Discretionary revision: Further research recommendations would be a beneficial addition.

7) minor essential correction: Minor error in the ‘background section’ paragraph 1 – ‘squeal’ needs to be corrected to ‘sequelae’.

This study adds to the currently changed APLS guideline and therefore can provide further strength to the argument of changing other guidelines.

With some revisions (essential) and some minor discretionary revision, this paper could be recommended for consideration of publication.

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

**Quality of written English:** Acceptable

**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:**

I declare that I have no competing interests