Reviewer’s report

Title: Impact of diuretic therapy-associated electrolyte disorders present on admission to the emergency department: a cross-sectional analysis

Version: 1 Date: 3 September 2012

Reviewer: Raymond Quigley

Reviewer’s report:

Answers to your specific questions:

1. Is the question posed by the authors new and well defined?
The question is not entirely new, however, the authors have gathered a large amount of data that can be used to better answer the question.

2. Are the methods appropriate and well described, and are sufficient details provided to replicate the work? Yes

3. Are the data sound and well controlled? Yes

4. Does the manuscript adhere to the relevant standards for reporting and data deposition? Yes

5. Are the discussion and conclusions well balanced and adequately supported by the data? Yes

6. Do the title and abstract accurately convey what has been found? Yes

7. Is the writing acceptable? Yes.

Specific comments:
The manuscript by Drs Arampatzis, et al, examines the impact of diuretic use on electrolytes in patients presenting to an emergency room. The authors have data that indicate that electrolytes disturbances (primarily with sodium and potassium) are more common in patients on diuretics and could impact their outcome.

Major Compulsory Revisions:

1. It is not surprising that there is a higher incidence of hyponatremia and hypokalemia in the group that was on diuretics. However, it is very interesting that the incidence of hypernatremia and hyperkalemia was also higher in the diuretic group. In addition, the mean sodium concentration was lower in the diuretic group (138 vs 139). This seems like a very small difference. Taken together, I think these data indicate that the spread of sodium concentrations in the diuretic group is much larger than that of the control group. I wonder if this indicates that the control of the serum sodium (i.e. the excretion of free water) is what the problem is. Could this be due to the diuretic itself or possibly due to the underlying disorder.

2. The same analysis would apply to the potassium concentrations. The diuretic
group had a mean of 4.03 and the control group, 3.93. However, there were more cases of hypo- and hyperkalemia in the diuretic group. Again indicating that the spread (or standard deviation) must be much larger in this group.

3. It is not clear in the Kaplan-Meier curve if there is a significant difference.

Minor Essential Revisions:
There are a number of references made to reference #1. Since this is a book, it would be helpful for the authors to indicate the chapter or page numbers that are referred to. Otherwise, the reader would need to review the entire text to see the point the authors are making.

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.