Reviewer’s report

Title: Investigation and management of moderate to severe inpatient hyponatraemia in an Australian tertiary hospital

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Reviewer: Christoph D. Schwarz

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This retrospective study describes the different clinical and therapeutically aspects of hyponatremia in a total of 152 patients.

The strength of the study is that its analysis the daily practice in the evaluation of the hyponatremia (percentage of measurements of urine sodium and osmolality, TSH, Cortisol) and it describes the occurrence of clinical symptoms. Further important data on documentation of daily fluid balance and the therapeutically approach were described very fine.

Major comments:

Methods:

For such a complex disease as hyponatremia the methods of analysis are not explained clearly enough:

As in other studies dealing with hyponatremia it is most difficult to categorize the volume status of the patients. In the method section the authors mentioned that clinical volume status was evaluated. It is necessary to describe the exact criteria used to assess volume status.

Patients were analysed and re-classified….. How were the hyponatremic patients classified by the treating teams? - based on the volume status? or was only the description in the medical records used for classification? It is necessary to describe the terms used i.e. SIADH, hypovolemic hyponatremia,…

How was the re-classification done by the study investigators? Were other criteria used to determine eu, hypo and hypervolemia? This is very important for the interpretation of all analysed data.

A diagnosis of non-renal salt depletion or volume overload was deemed likely if urinary sodium was < 30 mmol/l…..

This is also an inexact definition of two different clinical disorders which have to be separated. It includes i.e. cardiorenal syndromes as well as hypovolemic patients with hyponatremia.
It is necessary to make a clear characterisation of all hyponatremic patients based on the available clinical and laboratory data.

Further comments on the methods:

Which clinical symptoms were categorized as possible associated with hyponatremia?

How was the duration of hyponatremia estimated as described in table 1?

Was the hyponatremic episode at admission to hospital or during the hospital stay?

Results:

To give a senseful comment on the results the method section has to be rewritten as described above:

The less clear definition can lead to some misinterpretation: i.e.: Table 2: For the reader it is necessary to know if urine sodium and osmolality was used for the re-classification of the type of hyponatremia.

Also figure 1 depends on the definition of the different forms of hyponatremia as described above.

Are the methods appropriate and well described?

If not, please specify what is required in your comments to the authors.

No

Does the work include the necessary controls?

If not, please specify which controls are required in your comments to the authors.

Unable to assess

Are the conclusions drawn adequately supported by the data shown?

If not, please explain in your comments to the authors.

Unable to assess
Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
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Not relevant to this manuscript

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Acceptable

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