Reviewer's report

Title: Osmotic and acid-base changes due to acute hyponatremia after cardioplegia by histidine-tryptophane-ketoglutarate - a retrospective study

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Reviewer: Spyridon Arampatzis

Reviewer's report:

In this retrospective analysis of 25 patients, Lindner et al. studied the acute effects of Bretschneider solution on electrolytes and acid base status after administration of HTK solution for electromechanical cardiac arrest. Hyponatremia associated with the administration of HTK solution is iso-osmotic and should not be corrected in the absence of hypotonicity.

Hyponatremia induction by cardioplegic solutions was extensively studied in 628 pediatric cardiac patients by Kim and coworkers, but as the authors expressed in their paper, they are the first to report on measured serum osmolalities.

The findings of the authors, namely that the osmolality remains stable although marked hyponatremia develops, might be surprising at first, but make perfect sense when looking at the composition of Bretschneider solution.

The design of the study is adequate for the question the authors pose and the conduction is sound. The results are conclusive.

Minor Essential Revisions:

The only minor critique I would like to mention is the e-mail survey performed by the authors: although interesting I suppose that the low rate of answers by physicians makes the representation of the findings questionable.

Also the reference 9 is not correct (year of publication/page Nrs are missing).

In summary, the study of Lindner et al is interesting and relevant for the anesthesiologist confronted with the fluctuations of sodium concentration as “side effects” of Bretschneider solution.

Level of interest: An article whose findings are important to those with closely related research interests

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