Reviewer's report

Title: Short and long term outcome of neonatal hyperglycemia in very preterm infants: a retrospective follow-up study

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Reviewer: Fabrizio BARBETTI

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This paper describes the retrospective follow-up of very preterm infants referred to the Neonatal intensive Care Unit of Leiden University; main metabolic parameter followed was hyperglycemia. It is the understanding of this reviewer that hyperglycemia was of at least 12-h duration and treated with insulin therapy. The number of subjects investigated is large enough to withdraw some conclusion.

It is not clear to this reviewer if the Authors can provide: 1) blood electrolytes and pH; 2) the number and severity of HYPOglycemic episodes, if any, possibly associated with insulin therapy.

I believe that without these two parameters it is really difficult to assess the impact of HYPERglycemia (or HYPOglycemia) on the outcomes studied, i.e. mortality and impact on neurological problems. In addition I wonder if it would be possible to separate infants with short-lived hyperglycemia (say 12-24 hours) from those with a longer (more severe ?), hyperglycemia and see if there is difference in mortality and/or neurological problems. It seems logical that hyperglycemia of 12 hours (the "minimum") can be not that relevant as compared to a hyperglycemia of 169 (i.e. 1 week) hours. The longer insulin therapy may also increase the chances of HYPOglycemic episodes.

Other point. I think that it should be clearly stated in table 3 that "minimum" and "maximum" of duration are hours. If this is correct, then the text should be changed accordingly, because if maximum of insulin infusion was 754 (?) this mean that: 1) data analyzed are not of the first 5 days (page 8, first line) but longer, and 2) that insulin therapy lasted for some infants much longer than hyperglycemia. Can the Authors explain this?