**Reviewer’s report**

**Title:** Risk factors and outcome of patients with eclampsia at a tertiary hospital in Egypt

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**Reviewer:** Tracey L. Weissgerber

**Reviewer’s report:**

This cohort study examines risk predictors for eclampsia in women delivering at a tertiary care hospital in Egypt. In addition, the authors report on outcomes of patients with eclampsia at their center. The strengths of the study include the large number of women with the rare pregnancy complication eclampsia, and the identification and abstraction of data on all eclamptic women using hospital medical records. The manuscript also provides valuable data for an understudied region. I have several comments regarding the statistical analysis and interpretation of the data.

1. There draft does not contain an abstract or include page numbers.

2. Inclusion criteria - how did the authors define a "reliable history" of fits at home? It might be better to replace "fits" with seizures.

3. The methods section focuses on how data were obtained for women with eclampsia, but provides no information on how data were obtained for women who did not have preeclampsia. This information is important, as data from women who did not develop eclampsia are used in the analysis of risk predictors. Were women who were excluded from the eclampsia group due to epilepsy, etc. included in the "all deliveries" group?

4. In the first paragraph of the discussion, the authors note that they observed an incidence of eclampsia of 1.2%. The value that they have calculated is not an incidence; it is the percentage of patients delivering at the hospital where the study was conducted who had eclampsia. To calculate the incidence or prevalence, the authors would need to exclude all women (with and without eclampsia) who delivered at the study hospital but lived outside of the hospital catchment area. They would also need to provide evidence that their hospital performs all or almost all of the deliveries in that catchment area. The incidence of eclampsia in the population may differ from the percentage of patients with eclampsia at the study hospital for several reasons. For example, the authors may have observed higher rates of eclampsia than would be expected in the general population due to 2 factors:

   - Referral bias: The methods section notes that this is a tertiary care referral hospital and that women from outside the hospital catchment area who develop eclampsia are likely to be referred to the study hospital by health care providers, regional/local clinics, and patient self-referral. This would lead to a higher proportion of patients with preeclampsia when compared to other hospitals and clinics in the area that don't receive patients referred for severe complications.
- Deliveries at other centers: If healthy/low-risk pregnant women in the hospital catchment area routinely deliver at other clinics, this would also lead to higher rates of eclampsia at the study hospital compared to other hospitals or clinics. The authors would be underestimating the percentage of healthy deliveries and overestimating the percentage of women who develop eclampsia.

5. Table 1 is quite confusing, as it blends a standard demographics table describing the study sample with outcome data on risk factors. Table 1 should just describe the demographics for the study sample, using 4 columns (all deliveries, eclampsia, no eclampsia, p value for a single test indicating whether the groups are different). Risk predictors should be identified using a multivariate model, instead of by calculating odds ratios for one variable at a time. This would allow the authors to identify confounding variables and determine which things are risk factors after adjusting for confounding. The results of this multivariate analysis should be presented in the text or in a separate table.

6. The discussion of risk predictors is rather confusing. The authors focus on the percentage of women with eclampsia who have particular characteristics (i.e. BMI > 25 kg/m2). This percentage by itself is not very meaningful. For example, 42% of eclamptics being <20 years old is not very important if 42% of non-eclamptics are <20 years old, but is much more important if only 17% of non-eclamptic women are <20 years old. As described above, multivariate analyses are needed to determine which things are risk predictors after adjusting for confounding. The risk predictors section of the discussion should focus on the results of this multivariate analysis.

7. The discussion needs to acknowledge the limitations of this study, in particular referral bias (implications for the percentage of patients who developed preeclampsia were discussed above; in addition, the referral of complex cases may mean that women with eclampsia have more severe symptoms and/or worse outcomes that would be expected at other centers in the region).

8. In table 6, reporting birth weight centile would be more meaningful than reporting birth weight. This would account for the range of gestational ages at delivery.

9. Page 6 line 7: there appears to be an extra 0 - "The annual number of deliveries at this tertiary hospital ranges from 10,000 to 12,0000."

**Are the methods appropriate and well described?**
If not, please specify what is required in your comments to the authors.

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