



Basic Calculating Errors in Systematic Reviews

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Dear Editor,

Systematic reviews are regarded as one of the strongest forms of evidence-based medicine. A systematic review uses an objective and transparent methodology. This is a favorable part of systematic reviews that the analysis of the data can be checked by other researchers. Systematic reviews often use statistical techniques and accuracy of calculations is crucial for critical comments. From this view of point, I would like to comment on “The Impact of Sleeve Gastrectomy on Hypertension: a Systematic Review” published in *Obesity Surgery* (2012 May;22:832–7) [1]. At first, I want to thank to the authors for creating such huge tables that include thousands of patients. However, I think there was a basic mathematical error that was repeated in most of parts of the calculations.

The authors calculated the percentages or mean values of the parameters in each series and they listed them as columns and lines. After that, they totalized the percentages or mean values of the columns and divided the number of lines. However, the case numbers of each study were not the same. Calculation of the cumulative means should be based on weight (number of patients) of each study. This rule is also valid for the calculation of the cumulative percentages. I calculated the parameters again with their weights and listed the previous and the corrected results in a table (Table 1).

In the discussion, authors compared their results with the other bariatric procedures with regard to hypertension [2]. They concluded that “In comparison with the meta-analysis by Buchwald et al., LSG is a more effective procedure than gastric banding but slightly less effective than a gastric bypass in resolving hypertension.” I believe that the corrected results of this systematic review may need some revision on this conclusion. The resolution of hypertension was in 38.4, 56.1, and 75.4 % after gastric banding, sleeve gastrectomy, and gastric bypass, respectively. Also,

Table 1 Published and corrected means and percentages of the study

Parameter	Published results	Corrected results
Age (mean)	42.23 years	43.68 years
Gender (female)	67 %	70.9 %
Preoperative BMI (mean)	49.1 kg/m ²	48.3 kg/m ²
Preoperative incidence of hypertension	42 %	46 %
The mean excess weight loss	63.3 %	62 %
Average follow-up time, months (mean)	16.9	15.9
Resolution of hypertension	58 %	56.1 %
Resolution or improvement of hypertension	75 %	70.9 %
Persisted hypertension	23 %	29.1 %

resolution or improvement of hypertension was seen in 71.5, 70.9, and 87.1 % of patients after gastric banding, sleeve gastrectomy, and gastric bypass, respectively. In the light of these results, my comment is “sleeve gastrectomy is less effective than gastric bypass but slightly better than gastric banding in resolving hypertension.”

Lastly, I want to thank to the authors for their efforts and to the journal of *Obesity Surgery* for publishing evidence-based papers.

Sincerely,
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