

Letter to the editor regarding the study of Ruiz-Tovar et al.: “Long-term follow-up after sleeve gastrectomy versus Roux-en-Y gastric bypass versus one-anastomosis gastric bypass: a prospective randomized comparative study of weight loss and remission of comorbidities.”

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First and foremost, we would like to congratulate the authors on the publication of their prospective randomized study comparing sleeve gastrectomy (SG), Roux-en-Y gastric bypass (RYGB) and one-anastomosis gastric bypass (OAGB) in terms of weight loss and remission of comorbidities in *Surgical Endoscopy* 2019 [1]. The authors present an impressive follow-up rate of over 90% in every group (200 patients each) after 5 years. In this letter, we would like to point to some open questions and ambiguities regarding Ruiz-Tovar et al.'s study.

1. The authors present an extremely low number of internal hernias (found in only 4 of 200 patients, i.e. 2%) even though the mesenteric defect was not closed during RYGB. Cruz-Muñoz et al. in a study of 2079 patients published in 2011 found that not closing the mesenteric defect when performing RYGB resulted in an internal hernia rate of **11.7% after 5 years** [2]. These results were confirmed by a multicenter prospective randomized trial published by Stenberg et al. who found **8.9%** of bowel obstruction due to internal hernias **3 years after RYGB** without closure of the mesenteric defect during RYGB [3].
2. Another point we would like to discuss concerns the standard deviation of all values associated with patients' weight and BMI in Ruiz-Tovar et al.'s study which is much lower than in the majority of other bariatric studies (usually $\pm 20-30\%$). For example, while the standard deviation of patients' preoperative weight is stated to be only $\pm 11\%$ in this study (in each group!), it is about $\pm 22\%$ in the YOMEGA trial [4] **as well as** in Ruiz-Tovar et al.'s subsequently published study [5]. Also, the authors report a standard deviation of Excess BMI loss (EBMIL) of only $\pm 6-7\%$ in all groups (EBMIL after Sleeve 76.3 $\pm 6\%$, RYGB 77.1 $\pm 6.1\%$, OAGB 97.9 $\pm 7\%$) after 5 years. Such a low standard deviation

postoperatively represents an unusually homogenous outcome after all bariatric procedures.

3. The authors describe a BPL length of 200-350cm (60% total bowel length) and a common channel length of 180-250cm in their OAGB group but did in fact not find any difference in nutritional deficiencies between OAGB, RYGB, and SG. The authors also stated that all patients (SG, RYGB, OAGB) received 2 tablets of multivitamins (no specific bariatric multivitamins but over the counter tablets!) and mineral supplementation per day. Despite the much longer part of the small bowel having been bypassed compared to other studies, only 3 cases of transient hypoproteinemia (1.5%) were found after 5 years and were managed conservatively [1].

The authors of the recently published YOMEGA trial [4] found severe nutritional complications in 21.4% of their OAGB patients who had a biliopancreatic limb (BPL) of 200cm. Nabil et al. in their recent prospective randomized trial compared two groups of OAGB (group 1: 200cm BPL; group 2: 400cm alimentary limb and a mean BPL of 301cm). They found significantly higher Hb, iron and albumin deficiency rates in group 2 after one year [6]. Magouliotis et al. have recently published a meta-analysis comparing RYGB and OAGB (most studies included described a BPL of 200cm), the OAGB group showing a significant increase in protein malnutrition [7].

This excellent outcome compared to other studies was explained with a successful patient selection in the article's discussion. However, this explanation seems a bit inadequate as other centers have good patient selection and preoperative preparation as well. In any case, Ruiz-Tovar's outstanding results have yet to be reproduced by other bariatric teams.

4. The authors determined a preoperative weight loss of at least 10% of patients' weight to be an indispensable condition to undergo the selected bariatric technique. However, the paper does not include any information on the number of patients who did in fact achieve the 10% weight loss and whether those who did not were excluded from surgery.
5. The process of stratification of subjects into the three groups is not described in the paper. However, each group includes exactly 150 female and 50 male patients, which requires clarification indeed. Please note that probability of this distribution occurring naturally is 3.6×10^{-141} .
6. The authors report a mortality rate of **0% in 600 patients after 5 years**, which is highly unlikely indeed: probability is 4.3×10^{-14} . Arterburn et al. studied mortality after bariatric surgery and found a mortality rate of **6.4% in 2500 patients after 5 years** [8]. Adams et al. reported a mortality rate of **3%** (n=12) **6 years after RYGB** and 3% (n=14) in the non-operated control group [9].
7. **Every single patient** underwent the planned/intended operation – the authors did not report any conversions/change in operations strategy due to adhesions etc. in 600 patients. It is also mentioned in the paper that patients were randomized at their first visit to the outpatient clinic – when and how were they informed about study and procedures?

We would like to ask the authors to clarify each point as prospective randomized studies serve as the basis for the creation of guidelines.

Additional remarks:

- The first and last entry in ClinicalTrials.gov was 03/16/2018 and the paper was received on 03/28/2018 (12 days later) at Surgical Endoscopy. Thus, the ICMJE (International Committee of Medical Journal Editors) requirements of registration prior to patient enrollment are not met.
- Approval of an Ethics Committee (i.e. local institutional review board) and written informed consent of each patient are not mentioned in the paper.

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