



Metabolic surgery: present and future

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Several articles in this issue of the *Journal* cover a broad range of the new concepts of metabolic surgery, the mechanisms that leads to sustained metabolic syndrome remission, the new surgical procedures, and the perspective of surgeons and endocrinologists.

Obesity is a global health concern. Health surveys from 2005 revealed that the number of overweight and obese individuals in China were 200 million and 60 million, respectively^[1]. The rising prevalence of obesity is causing a major health burden in terms of morbidity and mortality^[2]. The complications of obesity and comorbidities, such as hypertension, coronary heart disease, type 2 diabetes mellitus (T2DM), hyperlipidemia, osteoarthritis, and an increase in cancer risk, are placing growing demand on healthcare resources^[3]. The metabolic surgery has been widely recommended as the only effective management for obesity and related metabolic syndromes^[4]. The global total number of metabolic surgical procedures increased very quickly. In 2011, the global total number was 340,768, and surgeons was 6,705^[5].

However, there are still a lot of considerable debates over the choice of operative procedure, optimal time, duration of effects, mechanisms behind the effects, new surgical procedures, and so on. In the article titled "Recent advancement in bariatric/metabolic surgery: appraisal of clinical evidence"^[6], Dr. Wei-Jei Lee et al. present a comprehensive overview of the development of metabolic surgery, including the improvement of safety, the new procedures, the mechanism studies and the option of patient selection. In the article titled "The Success of Sleeve Gastrectomy in the Management of Metabolic Syndrome and Obesity"^[7],

Dr. Asim Shabbir et al. summarize a new surgical procedure, sleeve gastrectomy(SG). The review introduces the development, mechanism, outcome, superiority and the future of the procedure. Based on the most recent basic and clinical data, the health benefits of the sleeve gastrectomy have been clearly established.

Perhaps no endocrinologist, 20 years ago, could predict that an operation would cure T2DM. Several studies have demonstrated dramatic improvements in T2DM among patients with morbid obesity following a variety of gastrointestinal surgical procedures. The article "Metabolic bariatric surgery and type 2 diabetes mellitus: an endocrinologist's perspective"^[8] by Dr. Kwang-Wei Tham in this issue is another testimony from the physicians. Endocrinologists have focused their attention on metabolic surgery. The diabetes patients will benefit from the medical and surgical cooperation.

There is strong evidence that metabolic surgeries can cure most of the associated T2DM in morbidly obese patients. On the other hand, a dramatic remission of glucose homeostasis even before weight loss occurs has attracted interest. With the current very low morbidity and mortality of metabolic procedures, a "surgical" treatment of diabetes in normal weight patients seems to be a new target. Dr. Liang et al. in their article "Roux-en-Y gastric bypass for the treatment of type 2 diabetes mellitus in Chinese patients with a BMI < 28 kg/m²: multi-institutional study"^[9] focuses on the remission of this group. The authors emphasized that Roux-en-Y gastric bypass (RYGB) is effective and safe for treating T2DM patients with a BMI < 28 kg/m². The data of follow-up was very attractive.

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Old age is a contraindication for metabolic surgery. NIH consensus conference had set age of more than 55 years as the upper limit for surgery. With the development of the metabolic surgery, the benefits and the risks that come with the surgery need to be reweighed in elderly obese patient. Dr. Chih-Kun Huang in his article titled “Bariatric surgery in old age: a comparative study of laparoscopic Roux-en-Y gastric bypass and sleeve gastrectomy in an Asia centre of excellence”^[10] suggested that in morbidly elderly patients, RYGB and SG achieved good weight loss and resolution of comorbidities. The rapid propagation of minimally invasive approach and comprehensive perioperative care would make metabolic surgery in elderly patients feasible and safer in the near future.

The intention of the Editorial Board of *Journal of Biomedical Research* in publishing these articles and reviews is to disseminate timely current views and opinions of experts in metabolic surgery, and to stimulate future investigations: (i) With the development of surgical technology and technique, the metabolic surgery has become very safe. Nevertheless, there will always be patients suffering from the perioperative or long-term complications postoperatively. The decision whether an individual is eligible for bariatric surgery should preferably be based on more facts than are available today. This needs more evidence from clinical studies. (ii) It is not yet clear how the altered anatomy after metabolic surgery improve carbohydrate and lipid metabolism. Energy homeostasis, gut hormones, omental gene expression, other unknown hormones and biomarkers are all worth to explore with a great desire. The metabolic surgery will teach

us the pathophysiology of obesity, T2DM, hyperlipidemia, and all related metabolic syndromes.

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