

## Emerging of laparoscopic metabolic surgery

Bariatric surgery has proven successful in treating not just obesity but also significantly decreases the overall obese associated morbidities as well as improves the quality of life in severely obese patients (BMI  $>35$  kg/m<sup>2</sup>) (1,2). Among all the obesity related co-morbidities, T2DM boosted by the obesity epidemic has reached to a pandemic level and is currently a significant challenge to health care system worldwide (3). Derived from bariatric surgery, metabolic surgery is focus on T2DM treatment in mild obese or overweight patients (BMI  $<35$  kg/m<sup>2</sup>) (4,5). A rapid increase of bariatric surgery started at 2000's when laparoscopic surgical technique was introduced into this field (6). The number of worldwide bariatric/metabolic procedures increased more than ten times since 1997 from 40,000 bariatric/metabolic procedures a year to more than half a million a year at 2014. Owing to the high incidence of obesity, bariatric/metabolic procedure has become the most commonly performed surgical procedures in USA (7). Although bariatric/metabolic surgery, especially performed by laparoscopic surgery, is one of the most common complex laparoscopic operations, the safety of laparoscopic bariatric/metabolic surgery improved very rapidly. The 30-day operation mortality was reported to be 2% in 2004 and decreased to 0.2% in 2009 in USA (8,9). Improvement of technology, operative technique, results of clinical trials and accumulation of experience all contributed to this progress. In the most recently publication, the 30-day mortality from European center of excellence program was reported to be only 0.012% recently (10). There is a dramatic change of bariatric/metabolic procedures in the past decade. The most impressive change of bariatric/metabolic procedure is the coming of laparoscopic sleeve gastrectomy (LSG). There is no report case of LSG up to 2003 but LSG became the leading bariatric procedure in USA since 2014 (11).

In this special issue of "laparoscopic metabolic surgery for the treatment of type 2 diabetes in Asia", leading experts in Asia will introduce the epidemiology and character of T2DM in this region. The mechanism of diabetes control after surgery is explained. Data of T2DM remission by different procedures will be reviewed, including sleeve gastrectomy, RY bypass, single anastomosis gastric bypass and a new metabolic procedure of sleeve gastrectomy with duodeno-jejunal bypass. In one article, the useful of omega-3 polyunsaturated fatty acid in bariatric patients will be present. Two articles deal with the effect of metabolic surgery on two important obesity related metabolic disorders, chronic kidney disease and non-alcoholic steatohepatitis. In the last two articles, predictor of T2DM remission after metabolic surgery and revision of metabolic surgery in Asia are reviewed. All laparoscopic metabolic surgery fields have been covered in this issue. We are grateful to all authors and experts in this field for their excellent contribution.

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