

Symposium 8

Medical Condition Change After Bariatric Surgery

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Panel Discussion

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Kanokkan Tepmalai

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• Education

Period	Affiliation	Position
- 2024	Bariatric surgery Cleveland Clinic, Ohio, USA	Observership
- 2014	Kobe university, Japan	Certificate in Diagnostic and therapeutic endoscopy including ESD,EUS and ERCP
- 2012	King Chulalongkorn Memorial Hospital, Thailand	Certificate in Advanced Laparoscopic and Endoscopic surgery
- 2011	Rajavithi hospital, Thailand	Certificate in Diagnostic and therapeutic gastrointestinal endoscopy
- 2011	Chulalongkorn University, Thailand	Diplomate of the Thai Board of Pediatric Surgery

• Committee Memberships

- (Woman ELSA) Endoscopic and laparoscopic surgeon of Asia (ELSA)
- Thai hernia society (THS)
- The association of general surgeons of Thailand
- Thai society of metabolic and bariatric Surgery (TSMBS)
- International Federation for the Surgery of Obesity and Metabolic Disorders (IFSO)

• Publications

- Chantakhow S, Tepmalai K, Singhavejsakul J, Tantraworasin A, Khorana J. Prognostic factors of postoperative Hirschsprung-associated enterocolitis: a cohort study. *Pediatr Surg Int* 2023. Jan 9;39(1):77
- Tanprasert, P.; Khorana, J.; Tepmalai, K. Factors Predicting Postoperative Esophageal Stricture after Repaired Tracheoesophageal Malformation in Children with Esophageal Atresia. *Journal of The Medical Association of Thailand* 106 : 402 - 410 2023
- Tanprasert P, Tepmalai K, Chakrabandhu B, Yodkeeree S, Piyamongkol W, Yamada SL. Collagen Deposition and Inflammatory Response Associated with Macroporous Mesh Shrinkage in Incisional Hernia Repair: A Rat Model. *Journal of Investigative Surgery* 35 : 1635 - 1645. 2022
- Techagumpuch A. , Pantanakul S. , Chansaenroj P. , Boonyagard N. , Wittayapairoch J. , Poonthananiwatkul T. , Chanswangphuvana P. , Tepmalai K. , Taweerutchana V. , PUNCHAI S. , Yolsuriyanwong K. , Ingkukul T. , Prathanvanich P. , Sumritpradit P. , Khaimook A. , Yimcharoen P. , Cheewattanakorukul S. , Udomsawaengsup S. , Nimmanwudipong T. , Linananda S. Thai society for metabolic and bariatric surgery consensus guideline on bariatric surgery for the treatment of obese patient in Thailand *Journal of the Medical Association of Thailand*. 103:300-307. 2020
- Ohara Y., Toyonaga T., Toyonaga T., Tanaka S., Ishida T., Hoshi N., Yoshizaki T., Kawara F., Lui K., Tepmalai K., Damrongmanee A., Nagata M., Morita Y., Umegaki E., Azuma T., Risk of stricture after endoscopic submucosal dissection for large rectal neoplasms. *Endoscopy*, 2016

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Cardiovascular Disease and Hypertension Change After Bariatric Surgery

Kanokkan Tepmalai (Chiang Mai University, Thailand)

Obesity is now recognized as a chronic, relapsing, multifactorial disease by the International Classification of Diseases (ICD). This shift in perspective is crucial, as it acknowledges obesity's complex etiology. Excessive adipose accumulation leads to hyperleptinemia and leptin resistance. Leptin is a hormone produced by adipose tissue that normally regulates appetite and metabolism. Leptin resistance contributes to insulin resistance and Type II diabetes. This metabolic dysfunction is a major risk factor for cardiovascular disease. Hyperleptinemia has effects include contribution to hypertension and vascular/myocardial injury and also contribute to hypertension. The combination of hypertension, vascular injury, and myocardial injury creates a vicious cycle, further exacerbating cardiovascular risk. There are multiple pathways through which excessive adipose accumulation leads to cardiac dysfunction . Sleep Apnea/Obesity Hypoventilation Syndrome: This leads to hypoxia and acidosis, contributing to pulmonary arterial hypertension. This, in turn, causes right ventricular (RV) hypertrophy and enlargement, potentially leading to RV failure.

The weight loss can yield significant cardiovascular benefits: Hypertension: 5-15% weight loss can lead to improvements in blood pressure, with benefits continuing even beyond 15% weight loss.

Dyslipidemia: 3-10% weight loss can improve lipid profiles.

Type 2 Diabetes: 5-15% weight loss can aid in diabetes prevention and potentially lead to remission in some cases.

Non-alcoholic fatty liver disease (NAFLD): 10% weight loss can improve this condition, which is closely associated with cardiovascular risk.

These findings underscore the importance of weight management in cardiovascular disease prevention and treatment. We should consider weight loss interventions as a fundamental component of cardiovascular risk reduction strategies.

Challenges in Weight Management Despite the clear benefits, achieving and maintaining weight loss is challenging. The physiological adaptations that occur with weight loss, including increased hunger and a slowing metabolism. This helps explain why many individuals struggle to maintain weight loss long-term.

or Obesity and Metabolic Disorders Bariatric surgery, which involves modifying the gastrointestinal tract to aid weight loss, has emerged as a powerful tool in managing obesity and its related complications, particularly type 2 diabetes and cardiovascular risk factors. The procedures can be categorized into restrictive, malabsorptive, or combined approaches, each with unique impacts on weight loss and metabolic improvements.

Mechanisms of Metabolic Improvement Several theories explain the metabolic benefits of bariatric surgery:

Rapid hindgut delivery hypothesis: Procedures like Roux-en-Y gastric bypass (RYGB) and biliopancreatic diversion (BPD) create shortcuts for food to reach the distal bowel, stimulating L cells to increase incretin hormone secretion, improving glucose homeostasis.

Upper intestinal hypothesis: Exclusion of the proximal small intestine from nutrient contact may decrease anti-insulin factors, enhancing insulin sensitivity and secretion.

Hormonal changes: Post-surgery, patients show markedly increased postprandial plasma GLP-1 and PYY levels, which play crucial roles in appetite regulation and glucose metabolism.

Cardiovascular Benefits From a cardiovascular perspective, the metabolic improvements following bariatric surgery are particularly noteworthy:

Diabetes Remission: In a study comparing laparoscopic Roux-en-Y gastric bypass (LRYGB) and laparoscopic sleeve gastrectomy (LSG), both procedures led to significant improvements in glucose homeostasis.

Hypertension Improvement: The study showed that 68% of adolescents and 41% of adults experienced remission of hypertension 5 years after surgery.

Improved Cardiac Function, reduced heart failure risk Sustainable Weight Loss: Both adolescents and adults achieved substantial and similar weight loss 5 years post-surgery (26% and 29% respectively).

Implications for Cardiovascular Care Earlier intervention in the course of obesity and metabolic disease may lead to better long-term cardiovascular outcomes.

Comprehensive Approach: While bariatric surgery is effective, it should be part of a comprehensive approach to cardiovascular risk reduction, including lifestyle modifications and appropriate medical management.

Patient Selection: Careful patient selection is crucial.

Safety and Complications: The complication rate is relatively low, comparable to Laparoscopic cholecystectomy or Hysterectomy. This supports the overall safety profile of bariatric surgery in experienced centers.

Long-term follow-up of bariatric surgery patients is essential to monitor and maintain cardiovascular health improvements. The risk of nutritional deficiencies post-surgery is an important consideration, should be monitored closely.

Conclusion

Bariatric surgery represents a powerful tool in our armamentarium against obesity-related cardiovascular disease. Its ability to induce significant and sustained weight loss, improve glycemic control, and reduce cardiovascular risk factors makes it an important consideration in the management of high-risk obese patients. We should be aware of these benefits and consider bariatric surgery referral for appropriate patients as part of a comprehensive cardiovascular risk reduction strategy.



Jong-Han Kim

Korea University, Korea

• Education

Period	Affiliation	Position
– 2001-2007	Graduate School, College of Medicine, Korea University	Ph.D.
– 1999-2001	Graduate School, College of Medicine, Korea University	M.M.
– 1990-1996	College of Medicine, Korea University	M.D.

• Affiliations / Experience

Period	Affiliation	Position
– 2018-Present	Department of Surgery, Korea University Guro Hospital	Professor
– 2016-2018	Department of Surgery, Korea University Ansan Hospital	Professor
– 2011-2012	Department of Bariatric Surgery, Oregon Health & Science University, USA	Visiting Professor
– 2011-2016	Department of Surgery, Korea University Ansan Hospital	Associate Professor
– 2007-2011	Department of Surgery, Korea University Ansan Hospital	Assistant Professor

• Committee Memberships

- Korean Society for Metabolic and Bariatric Surgery
- Perioperative Intra-Peritoneal & Systemic Chemotherapy Study group
- Korean Anti-Reflux Surgery Study Group
- Korean Laparoscopic GI Surgery Study Group
- Korean Gastric Cancer Association

• Publications

- Survival impact of compliance in extra-perigastric lymphadenectomy for gastric cancer: 20 years of real-world data from a single institution. *Surgery* 2022
- Perioperative Intra-Peritoneal & Systemic Chemotherapy for Gastric Cancer (PIPS-GC) study group. Intraperitoneal Paclitaxel Combined with S-1 Plus Oxaliplatin for Advanced Gastric Cancer with Peritoneal Metastasis: a Phase I Study. *J Gastric Cancer*. 2021
- Multicenter results of long-limb bypass reconstruction after gastrectomy in patients with gastric cancer and type II diabetes. *Asian J Surg*. 2020
- Sentinel Node Mapping Using a Fluorescent Dye and Visible Light During Laparoscopic Gastrectomy for Early Gastric Cancer: Result of a Prospective Study from a Single Institute. *Ann Surg*. 2017
- Should lymph node micrometastasis be considered in node staging for gastric cancer? The significance of lymph node micrometastasis in gastric cancer. *Ann Surg Oncol*. 2015

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Gastrointestinal Motility and Function Change After Bariatric Surgery

Jong-Han Kim (Korea University, Korea)

Alterations in digestive motility after bariatric surgery are not rare complications and they are frequently part of the mechanism of action and a result of surgery. They are usually associated with an increase in weight loss but can lead to the negative consequences on quality of life, which are reversible as a real surgical complication.

Esophageal dysmotility is more frequent in patients with obesity than in the rest of population. Laparoscopic sleeve Gastrectomy (LSG) is the most common bariatric surgery in the world. While clinically effective, recent studies have shown increasingly higher rates of gastroesophageal reflux disease (GERD) and esophageal motility disorders. Anatomical changes after LSG including disruption of the anti-reflux barrier mechanism, hyper pressurization of the proximal and distal chamber of stomach can induce GERD.

Several diagnostic tools such as high-resolution manometry, gastric scintigraphy and impedance pH testing are useful to investigate the relationship between LSG and GERD.

RYGB is considered the gold standard in patients with obesity and GERD and This operation permits a decrease in the DeMeester score after impedance pH-metry and preserves esophageal motility.

Treatment of esophageal dysmotility, especially GERD, is first medical. In the case of medical treatment failure, surgical treatment is recommended: LAGB removal, conversion of LSG to RYGB.

Acceleration of gastric emptying after LSG is due to the increase in intra-gastric pressure, the decrease in gastric wall compliance and the fundus removal, with a loss of reservoir function of the stomach. Also, accelerated gastric emptying makes RYGB the first-line treatment of gastroparesis in patients with obesity and for patients who received other types of gastric surgery.

Dumping syndrome is due to accelerated passage of aliments into the intestine. Symptoms of early dumping syndrome (1 hour after food intake) are abdominal pain, nausea, diarrhea, hypotension, tachycardia and post-prandial fatigue. Late dumping syndrome is characterized by hypoglycemia and hyperinsulinemia 1-3 hours after food intake. First-line treatment of dumping syndrome is based on alimentary behavioral changes. In the case of failure, pharmacological treatment is based on somatostatin analogues with a short duration of action.



Moon-Won Yoo

University of Ulsan, Korea

• Education

Period	Affiliation	Position
– 2010-Present	The Catholic University of Korea Department of Business Administration	Ph.D.
– 2006-2008	Seoul National University college of Medicine	M.S.
– 1992-1998	Seoul National University college of Medicine	M.D.

• Affiliations / Experience

Period	Affiliation	Position
– 2012-Present	Asan Medical Center	Clinical Professor
– 2008-2012	Konkuk University College of Medicine	Assistant professor, Clinical Assistant Professor
– 2006-2008	Seoul National University Hospital	Clinical Instructor
– 2003-2006	Republic of Korea Army	Medical Officer (Captain)
– 1998-2003	Seoul National University Hospital	Intern & Resident

• Committee Memberships

- Korean Society of Metabolic and Bariatric Surgery
- Korean Society of Gastrointestinal Surgery
- Korean Gastric Cancer Association
- Korean Society for the Study of Obesity
- Korean Society of Endo-Laparoscopic & Robotic Surgery

• Publications

- Survey of information acquisition and satisfaction after bariatric surgery at a tertiary hospital in Korea. *J Obes Metab Syndr.* 2024 Mar 30;33(1):45-53. (corresponding author)
- Factors Associated With Loss to Follow-up After Laparoscopic Sleeve Gastrectomy: A Single-Center Retrospective Study. *J Metab Bariatr Surg.* 2023 Jun;12(1):1-10. (corresponding author)
- Safety evaluation of curative gastrectomy for gastric cancer patients who underwent liver transplantation: a comparative study with conventional gastrectomy for gastric cancer patients. *World J Surg Oncol.* 2023 May 11;21(1):145. (corresponding author)
- Early Clinical Outcomes of the Morbidly Obese Patients Who Underwent Laparoscopic Sleeve Gastrectomy by Gastric Cancer Surgeons: the Analysis of Fifty Consecutive Cases. *J Metab Bariatr Surg.* 2021 Dec;10(2):66-73. (corresponding author)
- Risk Factors for Gallbladder Stone Formation after Gastric Cancer Surgery. *J Gastric Cancer.* 2019 Dec;19(4):417-426. (corresponding author)

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Bariatric Surgery and its Impact on Cancer Risk Reduction

Moon-Won Yoo (University of Ulsan, Korea)

Introduction

Bariatric surgery, an effective treatment for morbid obesity, has shown not only significant weight loss and improvements in obesity-related comorbidities but also a potential reduction in cancer risk. This review examines the current evidence regarding the relationship between bariatric surgery and cancer incidence.

Mechanisms of Cancer Risk Reduction

Obesity is a well-established risk factor for various cancers, including breast, colon, endometrial, and pancreatic cancers. The mechanisms linking obesity to cancer include chronic inflammation, insulin resistance, altered adipokine levels, and hormonal changes. Bariatric surgery reduces body weight significantly, which in turn reduces these cancer-promoting factors. Additionally, bariatric surgery improves metabolic profiles, reduces systemic inflammation, and normalizes insulin levels, thereby potentially lowering cancer risk.

Evidence from Clinical Studies

Several observational studies and meta-analyses have investigated the association between bariatric surgery and cancer risk. Key findings will be shown in this presentation.

Conclusion

Bariatric surgery appears to significantly reduce the risk of several obesity-related cancers, particularly in women. The mechanisms likely involve substantial weight loss, hormonal changes, and improved metabolic health. As obesity rates continue to rise globally, bariatric surgery may play a crucial role in cancer prevention strategies for high-risk populations.