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Mechanism of surgical cure for low BMI type 2 DM

Kyung Yul Hur
Soon Chun Hyang University School of Medicine, Korea

The most potent therapeutic modality for type 2 diabetes is rerouting of food passage or restriction of food intake by surgery. But, the Achilles heel of surgery is surgical risk itself. So far, aggressiveness and morbidity were excusable in surgical treatment because it was final modality for most cases. But, in metabolic & bariatric surgery, it's just the beginning of treatment. We need to carefully weigh the pros and cons before surgical intervention. Recently, we have found acceptable operative procedure for cure of diabetes. Before discussing about the mechanism of surgery, it would be better to open our published data for better understanding. The numbers of patients who have been followed up for more than 5 years were 60. Among them, 37 patients were analyzed. Outcomes of preoperative, post-operative 1st year and 4th year follow-up were included. The HbA1C, HOMA-IR, Matsuda index and acute insulin response were analyzed to evaluate blood glucose control, insulin resistance, insulin sensitivity and pancreatic beta cell function. Perioperative incretin changes were evaluated in 12 non-obese subjects to compare at before the surgery and 1 month after by ELISA. Preoperatively, mean age was 48, BMI was 24.5 and HbA1C level was 9.1%. 30 patients (81%) have shown decreased HbA1C lower than 6.9% during the follow up. HbA1C decreased continuously after the surgery. HOMA-IR decreased at first year after the surgery and then increased within the acceptable range. Interestingly, insulin sensitivity, which is represented by Matsuda index, sharply increased at first year and then recovered. The major cause of type 2 diabetes in East Asia has been thought to be impaired insulin secretion rather than increased insulin resistance. Modulation of gastric emptying in response to signal from small intestine prevents dumping syndrome, marginal ulcer, diarrhea, bile reflux to stomach and so forth. But, care should be taken to pyloric preservation. Meticulous analysis of published data for duodeno-jejunal bypass, anti-diabetic effect of surgery is extremely inconstant between paper to paper. Subtle difference between two groups was whether preservation or exclusion of pyloric ring. In other word, completeness of duodenal mucosal exclusion is possible determinant. Incomplete exculsion of duodenal tissue is directly connected with recurrence of hyperglycemia. Unique pattern of mucosal regeneration is key element of recurrence. Intestinal mucosa is replaced with its progeny adjourn to another villi within 5 days. Anastomosed jejunal epithelium becoming duodenal epithelium will be a reasonable thesis. Best design of rerouting is preservation of pyloric digestive function simulaneously complete exclusion of duodenal mucosa. he pyloro-enteric anastomosis technique guarantees both anti-diabetic effect and functional preservation. Incretin secreting entero-endocrine cells never found in pyloric ring covered with gastric mucosa. Guarantee of anastomosis safety by 5cm epigasrtic incision with extracorporeal hand-sewing is another benefit. Result is more than better for 7 patients underwent single anastomosis pyloro-enterostomy. Long-term follow up for effectiveness and safety is mandatory.

Biography

Kyung Yul Hur, is Professor and Chief of General Surgery at Soonchunhyang University Hospital, Seoul, Korea. He graduated from Soonchunhyang University, School of Medicine in 1984 and then got his Master's and Doctor at the same university. Now, he is working as a Hepatobiliary and Pancreatic Surgeon among the various surgical fields. He has huge experience in liver and pancreas surgery such as major hepatectomy and pancreatico-duodenectomies and invented many innovative expedient techniques for procedure. He also has great interest in developing new technology and procedure. During his stay in the United States of America from, he focused and spent all the time on laparoscopic surgery. He stamped to the pioneer of laparoscopic surgical field in Korea. He adopted laparoscopic TEP hernia repair in Korea, and 1st surgeon who performed gastric bypass to deal with metabolic issues.

hurusa@hanmail.net

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