IJAE
Vol. 119, n. 1 (Supplement): 198, 2014
ITALIAN JOURNAL OF ANATOMY AND EMBRYOLOGY

Endocrine cells distribution pattern in the proximal small intestine of patients submitted to pancreaticoduodenectomy

Rosa Vaccaro[1], Arianna Casini[1], Piero Chirletti[2], Carola Severi[3], Giuditta Serrao[2], Paolo Onori[1]

[1] Dept. of Anatomical, Histological, Forensic Medicine and Orthopedics Sciences, SAPIENZA University of Rome, Italy
[2] Dept. of Surgical Science – Interdisciplinary Surgery Section, SAPIENZA University of Rome, Italy
[3] Dept. of Internal Medicine and Medical Specialities, SAPIENZA University of Rome, Italy

The best surgical technique for pancreatic anastomosis after pancraticoduodenectomy (PD) is still debate. It is estimated that the atrophy of the pancreatic remnant is the common evolution after one year after surgical PD [1]. This may also be a consequence of deregulation of pancreatic neurohumoral stimulatory factors after duodenal removal. After PD, in order to maintain the pancreatic exocrine function, has been proposed the recostruction with two jejunal loops [2]: the first jejunal loop to the stomach, and the second jejunal loop to the pancreatic stump (end-to-end pancreatic jejunostomy), and following a hepatic jejunostomy. At the end, the intestinal continuity is restored by an entero-entero anastomosis [3]. Gastric preservation might favour an adequate weight gain after surgery due to higher caloric intake and normal acid secretion acts as a physiologic stimulus to promote the secretion of secretin and cholecystokinin (CCK). Our aims were to investigate the distribution pattern of serotonin-, secretin- and CCK cells in proximal small intestine. Specimens from duodenal, first and second jejunal loop taking from seven male patients submitted to PD were collected and immunohistochemical reaction and morphometrical analysis were performed. We found a general decrease of enteroendocrine cells in the second jejunal loop with a significant reduction of CCK-cells. So after removal of the duodenal source of secretin and CCK, preservation of the first jejunal loop that comes anastomized to the stomach, restores the alimentary circuit and maintain the physiological jejunal secretion of secretin and CCK subsequent to alimentary transit and can compensate (at least in part) for the abolished duodenal hormonal release. This operative procedure may preserve the exocrine and endocrine pancreatic secretion through the maintenance of physiological stimuli.

References

[1] Sikkens Edmée C.M. et al, (2012). The daily practice of pancreatic enzyme replacement therapy after pancreatic surgery: a northern European survey: enzyme replacement after surgery. J Gastrointest Surg 16:1487-92.
[2] Chirletti P. et al, (2009). Pancreaticojejunostomy with application of fibrinogen/thrombin-coated collagen patch (TachoSil) in Roux-en-Y reconstruction after pancreaticoduodenectomyJ Gastrointest Surg 13:1396-8.
[3] Caronna R. et al, (2012). Pancreaticojejuno anastomosis after pancreaticoduodenectomy: brief pathophysiological considerations for a rational surgical choice. Int J Surg Oncol. Eupub 2012 Mar 5.

Keywords
Duodenum, jejunum, enteroendocrine cells, CCK, secretin, serotonin.