

Clinical Science

Metabolic consequences of the occlusion of the main pancreatic duct with acrylic glue after pancreaticoduodenectomy



Teresa Mezza, M.D.^a, Gennaro Clemente, M.D.^{b,*},
Gian Pio Sorice, M.D.^a, Caterina Conte, M.D.^a,
Agostino Maria De Rose, M.D.^b, Vincin Alice Sun, M.D.^a,
Chiara Maria Assunta Cefalo, M.D.^a, Alfredo Pontecorvi, M.D., Ph.D.^a,
Gennaro Nuzzo, M.D.^b, Andrea Giaccari, M.D., Ph.D.^a

^aDivision of Endocrinology and Metabolic Diseases, ^bDepartment of Surgical Sciences,
Catholic University of Sacred Heart, A. Gemelli Medical School, L.go Gemelli 8, Rome 00168, Italy

KEYWORDS:

Pancreaticoduodenectomy;
Pancreaticojejunostomy;
Pancreatic duct
occlusion;
Metabolic evaluation;
Insulin secretion

Abstract

BACKGROUND: Pancreaticoduodenectomy represents the major treatment for pancreatic and periampullary neoplasms. Complications related to pancreaticojejunostomy are still the leading cause of morbidity and mortality. A solution proposed by some surgeons is the occlusion of main pancreatic duct by acrylic glue, avoiding pancreaticojejunostomy. Nevertheless, the consequences of this procedure on glucose metabolism are not well-defined.

METHODS: We retrospectively analyzed a cohort of 50 patients who underwent pancreaticoduodenectomy and had metabolic assessments available. The metabolic evaluation included the following: body composition and clinical evaluation, an oral glucose tolerance test, and an hyperinsulinemic euglycemic clamp procedure.

RESULTS: Twenty-three patients underwent pancreatic duct occlusion and were compared with 27 patients, well-matched controls, who underwent pancreaticojejunostomy. Pancreatic duct occlusion leads to a greater impairment in insulin secretion compared with classic pancreaticojejunostomy.

CONCLUSION: Pancreatic duct occlusion is associated with a greater reduction in insulin secretion but does not lead to meaningful differences in the management of patients with diabetes.

© 2015 Elsevier Inc. All rights reserved.

This study was supported by grants to A.G. from the Università Cattolica del Sacro Cuore (Fondi Ateneo Linea D.3.2 Sindrome Metabolica), the Italian Ministry of Education, University and Research (PRIN 2010JS3PMZ_011), and Fondazione Don Gnocchi (00018.5). T.M. is the recipient of the Albert Reynolds Travel Fellowship by European Association for the Study of Diabetes and Fellowship Prize by the Società Italiana di Diabetologia. G.P.S. is the recipient of fellowship from Laboratori Guidotti.

* Corresponding author. Tel.: +39-06-30157251; fax: +39-06-3058586.

E-mail address: gclemente@rm.unicatt.it

Manuscript received November 19, 2014; revised manuscript
December 27, 2014

Whipple's procedure represents the standard treatment of the tumors of the head of the pancreas and other periampullary neoplasms (cancers of the ampulla, distal common bile duct, or duodenum). Despite notable improvements in mortality, currently reported with an incidence of less than 5%,^{1,2} morbidity remains a significant problem, being reported in up to 50% of cases.³ Complications related to pancreatic anastomosis are still the leading cause of morbidity and mortality associated