Are There Predicting Factors Related to a "Soft Pancreas"?

Claudio Ricci[1], Giovanni Taffurelli[1], Marielda D'Ambra[1], Salvatore Buscemi[1], Eugenia Peri[1], Raffaele Pezzilli[2], Riccardo Casadei[1], Francesco Minni[1]

Departments of [1]Surgery and [2]Internal Medicine and Gastroenterology, "S.Orsola-Malpighi" Hospital. Bologna, Italy

Context It is well-known that a soft pancreatic stump is related to an increased incidence of postoperative pancreatic fistula (POPF) after pancreatic resection. **Objectives** To evaluate the presence of preoperative factors predicting soft pancreas in patients who underwent pancreaticoduodenectomy (PD) or left pancreatectomy (LP). **Methods** From January 2004 to June 2012, data regarding 208 consecutive patients whom underwent PD or LP were collected in a prospective database. For each patients we recorded sex, age, co-morbidities, BMI, ASA score, preoperative diagnosis, type of resection, characteristics of pancreatic remnant, pathological diagnosis and POPF rate. Univariate and multivariate analyses were carried out in order to evaluate the preoperative factors predicting a soft pancreatic stump. **Results** There were 102 (49%) female and 106 (51%) male with a mean age of 64.5±13.2 years. Co-morbidities were present in 128 (61.5%) patients; 64 patients (30.8%) were ASA II, 128 (61.5%) ASA III and 16 (7.7%) ASA IV. Mean BMI was 25.3±4.4 kg/m². A pancreatic cancer or a chronic pancreatitis (CP) were suspected in 85 (40.9%) cases. One-hundred and twenty-five (60.1%) patients underwent PD and 83 (39.9%) LP. Pancreatic stump was soft in 129 (62%) cases and Wirsung duct was dilated in 55 cases (26.4%). Sixty-one patients (29.3%) had POPF (9.1% grade A; 19.2% grade B; and 1% grade C). Univariate analysis showed that a non dilated Wirsung duct ($P<0.001$), a pre-operative diagnosis different from pancreatic cancer or CP ($P<0.001$) and an increasing BMI value ($P=0.002$) were factors related to "soft pancreas". Multivariate analysis confirmed that a non-dilated Wirsung duct and a preoperative diagnosis different from pancreatic cancer or CP were independent factors related to soft pancreas (OR: 4.1, 95% CI: 2.0-8.4, $P<0.001$; and OR: 3.6, 95% CI: 1.9-6.8, $P<0.001$; respectively). A BMI value best cut off of 24 kg/m² was obtained by a ROC curve (AUC=0.607; $P=0.010$). A further multivariate analysis showed that the cut off of BMI resulted an independent factor predicting soft pancreas (OR 2.5, 95% CI: 1.2-4.8; $P=0.009$). **Conclusion** BMI value >24 kg/m², a non dilated Wirsung duct and a pancreatic lesion different from pancreatic cancer or CP can predict a soft pancreas and subsequently a major risk of POPF.