

Evaluation with Dynamic Magnetic Resonance Pancreatography of Somatostatin inhibitory effect on pancreatic exocrine function.

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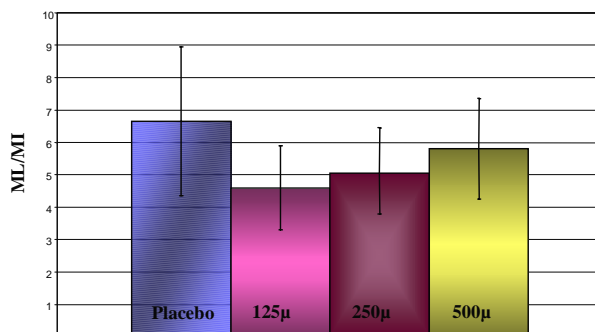
Introduction: Somatostatin has an inhibitory action on pancreatic exocrine secretion. The inhibitory effect of low dose of Somatostatin (25 µg/h) on secretin-stimulated pancreatic exocrine reserve has been demonstrated in healthy volunteers by an invasive study and a competitive type of inhibition has been suggested.(1) Higher doses have not been tested, in particular the dose of 250mg/h considered the standard dose in clinical practice.

In this study we used Dynamic MR Pancreatography (D-MRP) to quantify pancreatic fluid output and excreted volume after pancreatic hormonal stimulation with secretin.(2)

Material and Methods: The aim was to determine non-invasively by secretin-enhanced D-MRP the inhibitory effects of different doses of Somatostatin (125, 250, 500 µg/h) on pancreatic exocrine function.

Ten healthy volunteers (mean age 22 years, 7 women), fasting at least 6 hours, underwent to four D-MRP. At each examination (one week of interval in between) each volunteer received one of the three dose of Somatostatine (125, 250 and 500 µg/h) or the dose of placebo, in a single IV administration (total perfusion time 40 min). After 25 min from the beginning of drug infusion, secretin was injected (1 UI/kg of body weight). MR protocol consisted in: 1) Coronal respiratory-triggered, T2 weighted turbo-spin-echo; 2) axial 3D T1 fat-suppressed gradient-echo acquired in breath-hold; 3) coronal multislice D-MRP, heavily T2 weighted, fat suppressed turbo-spin-echo in breath-hold, performed before and every 30 sec during 15 min after secretin administration. Before the last acquisition, a known volume of water was given to fill the stomach so to obtain a reference for quantification of pancreatic fluid output and total pancreatic fluid volume.

Results: The mean results obtained from the ten volunteers showed that between the three different doses of Somatostatin administrated, the dose of 125µg/h has the most important inhibitory effect on pancreatic exocrine reserve.



Conclusions: Quantification of pancreatic exocrine secretion is feasible with D-MRP in physiologic and non physiologic conditions. Somatostatin mean inhibitory effect on pancreatic exocrine function seems to be most significant at a dose of 125µg/h.

References

1. Vant et al A small dose of somatostatin inhibits the secretin stimulated secretion of bicarbonate, amylase, and chymotrypsin in man. *J. Endocrinol. Invest.*, 3, 279-282, 1980
2. Panwani S et al Non invasive quantification of pancreatic exocrine function using secretin-stimulated MRCP *Eur Radiol*, 13: 273-76; 2003