Chronic Pancreatitis in Children: Role of Dynamic MRCP after Secretin Administration

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Introduction
To assess the accuracy of dynamic MRCP after secretin administration (S-MRCP) in detecting ductal abnormalities in children with diagnosed chronic pancreatitis.

Methods
16 children (10 M; 6 F; mean age 11.7 y) referred for “pancreatic-like” abdominal pain and enzymatic abnormalities (hyperamilasemia and/or hyperlipasemia) underwent MRCP before and after secretin administration, to rule out pancreatic disease. Mean age at diagnosis was 7.8 years (range 2-13). Two patients showed recurrent episodes of acute pancreatitis (4-6 episodes/year). 5/16 patients had familiarity for chronic pancreatitis. In 7/16 patients pancreatic abnormalities were detected also at sonography. All patients underwent ERCP, that represented the standard of reference for ductal abnormalities; at ERCP 7 patients showed severe chronic pancreatitis, whereas 9 patients showed early chronic pancreatitis.

Quantitative image analysis included: measurement of the main pancreatic duct (MPD) caliber before and 3’ after secretin administration; a Student-t test was applied to analyze the differences.

Qualitative MRCP images analysis included: number of main pancreatic duct segments visualized (head, body, tail), visualization of side branches; presence of ductal stenosis, acinar filling, pancreas divisum; duodenal filling.

Results
A significant increase in size of the MPD was detected only in the head of the pancreas: from 0.56 mm (pre-secretin) to 1.81 (post-secretin)(p<0.01).

The number of main pancreatic duct segments visualized were 25 before and 47 after secretin. Side branches were visualized in 3 patients before and in 8 patients after secretin. Ductal stenoses were visualized in 4 patients before secretin and in 6 patients after secretin. Acinar filling was observed in 2 patients after secretin. Pancreas divisum and an abnormal pancreatico- biliary junction was missed in 1 patient. 2 patients had reduced duodenal filling, suggestive of reduced exocrine functional reserve.

Discussion
Secretin administration improves the accuracy of MRCP in detecting early ductal changes in children with chronic pancreatitis. Furthermore the availability of a non-invasive test able to diagnose ductal abnormalities may enable an earlier diagnosis of chronic pancreatitis, perform a follow up maybe changing the natural history of the disease.

References