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Effect of oral effervescent agent for magnetic resonance cholangiopancreatography in the patients with suspicious pancreatobiliary disease

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Background : MRCP is the modality of choice for noninvasive imaging evaluation in patients with suspicious pancreatobiliary disease. 2D MRCP sequence has the potential technical limitation that hyperintense intraluminal signal from the fluid within adjacent gastrointestinal tract may superimpose upon the signal arising from the pancreaticobiliary tree, thereby limiting comprehensive evaluation of this system. The purpose of our study was to validate the improvement of magnetic resonance cholangiopancreatography (MRCP) with oral administration of effervescent agent in patients with suspicious pancreatobiliary disease.

Methods : One hundred and eleven consecutive patients with alleged or suspected pancreaticobiliary tree problems who had undergone two-dimensional MRCP imaging both before and after the administration of oral effervescent agent (conventional-MRCP and enhanced-MRCP) were included. Two radiologists independently scored overall image quality, visualization of ten ductal segments, and gastrointestinal tract signal intensity score. In consensus, they assessed the presence of intestinal fluids in different anatomic locations of stomach and duodenum and anatomic structures of intestinal fluids overlapping pancreaticobiliary tree. The data were analyzed using Wilcoxon's signed-rank test, McNemar test, and paired t-test.

Results : Overall image quality grades, biliary duct visualization scores for ten targeted ductal segments except for pancreatic duct (PD) at head and tail, and gastrointestinal tract signal intensity scores increased significantly on E-MRCP on both readers ($P \leq .02$). On E-MRCP, gastrointestinal fluids in stomach and duodenum except for gastric fundus were less detected rather than those on C-MRCP. Anatomic structures of intestinal fluids overlapping extrahepatic bile duct were mainly gastric antrum, duodenal bulb, and 2nd portion on C-MRCP. And, these fluids were less overlapped on E-MRCP ($P < .001$). Gastric body and antrum were main anatomic structures of intestinal fluids overlapping PD on C-MRCP, and fluid in these locations significantly less overlapped PD on E-MRCP ($P \leq .02$).

Conclusions : Oral administration of effervescent agent provided effective elimination of gastrointestinal fluid overlapping pancreaticobiliary ductal system at MRCP and can improve the quality of the examination in the patients with known or suspected pancreatobiliary disease.

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