

# Prospective Evaluation of the Value of Secretin in Magnetic Resonance Cholangiopancreatography in Patients with Suspected Chronic Pancreatitis

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## Purpose:

The purpose of this study was to show and determine the positive effect of secretin in MRCP to improve the reliability of the diagnosis chronic pancreatitis.



Figure 1: STARD flow diagram

## Results:

Prior to secretin application the investigators achieved sensitivities of 78% (7 of 9 patients) respectively 56% (5 of 9 patients) and specificities of 89% (47 of 53 patients) respectively 96% (51 of 53 patients). After secretin application sensitivity for the first observer remained at 78% (7 of 9 patients), for the second observer it increased to 67% (6 of 9 patients) whereas specificities improved to 94% (50 of 53 patients) resp. 98% (52 of 53 patients). Following the secretin application, agreement determined by the kappa-coefficient between the two investigators improved from 0.73 to 0.84.

## Method and Materials:

62 patients with suspected chronic pancreatitis were prospectively included in our study. All investigations were carried out in a clinical 1.0T MR-scanner using a torso phased-array coil acquiring presecretin and dynamic postsecretin heavily T2-weighted sequences. Dynamic images were acquired every 30s for a total imaging time of 10 minutes. Two experienced radiologists blinded for all clinical and imaging results evaluated the images in random orders in two sessions: the native images and the stimulated MRCP-series. Gold standard for the final diagnosis was the summary of all clinical and radiological results. Sensitivity and specificity for the diagnosis of chronic pancreatitis and the kappa-coefficient for the agreement between both observers were calculated.

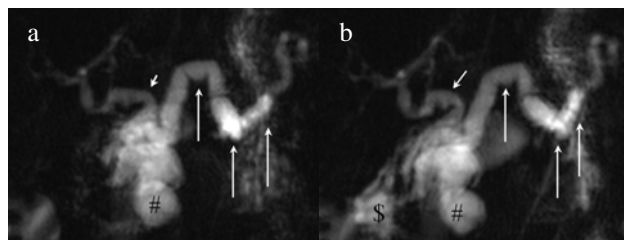


Figure 2: Coronal single shot fast spin echo image of a 84-year-old female patient suffering from chronic pancreatitis. A clearly dilated pancreatic duct (arrows) is shown as a characteristic change in patients suffering from chronic pancreatitis. In addition, the common hepatic duct (arrow head) and the duodenum (#) are visualized. The duodenal filling does not change between the baseline (a) before secretin application and 10 minutes (b) post secretin application. The diameter of the pancreatic duct does not change during the course of the observation. \$: distal jejunum.

Table 1: Diagnostic performance of both observers before and after the application of secretin

	First radiologist		Second radiologist	
	secretin application		secretin application	
	before	after	before	after
Specificity	89	94	96	98
Sensitivity	78	78	56	67
Positive predictive value	54	70	71	86
Negative predictive value	96	96	93	93
Kappa-value for both observers	before secretin: 0,73		after secretin: 0,84	

## References:

1. Lomas DJ et al. Eur Radiol 1999. 2. Matos C et al. Radiographics 2002. 3. Heverhagen JT et al. Radiology 2001

## Conclusion:

While MRCP already provides high sensitivity and specificity, application of secretin increases both values and the reliability of the diagnosis further and therefore improves the reliability of the diagnosis of chronic pancreatitis in MRCP. Secretin-stimulated MRCP may potentially replace diagnostic ERCP in the diagnosis of chronic pancreatitis.