



**ESGE SYMPOSIUM**

## **QUALITY IN ENDOSCOPY: ERCP**

**OCTOBER 6-8, 2011**

**VENUE: SHERATON ARABELLAPARK HOTEL  
MUNICH, GERMANY**

**Debate: ERCP in acute biliary pancreatitis  
CONTRA**

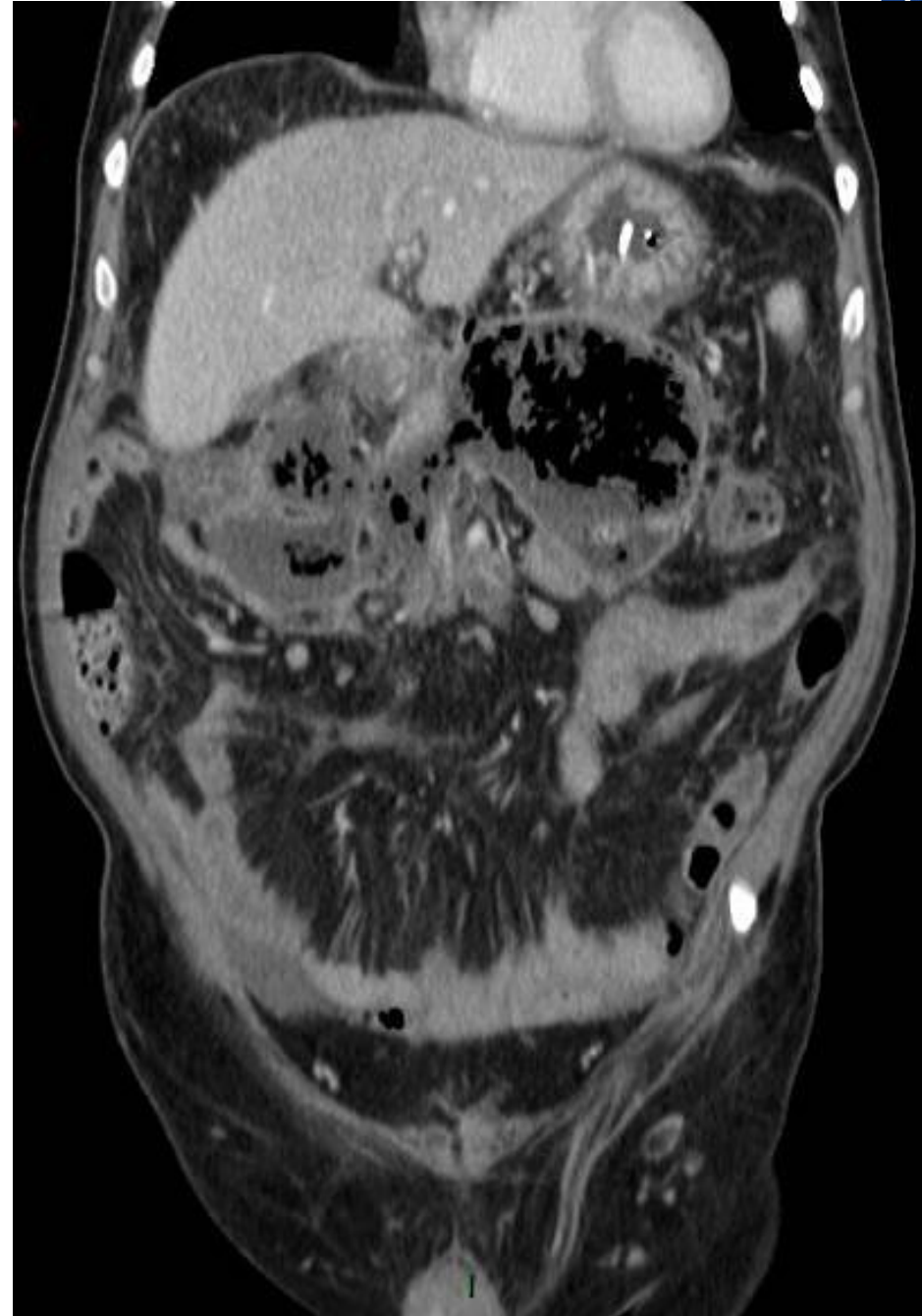
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[www.quality-in-endoscopy.org](http://www.quality-in-endoscopy.org)





**63 y man  
Severe AP  
post ERCP - EBS  
for small CBD stones**



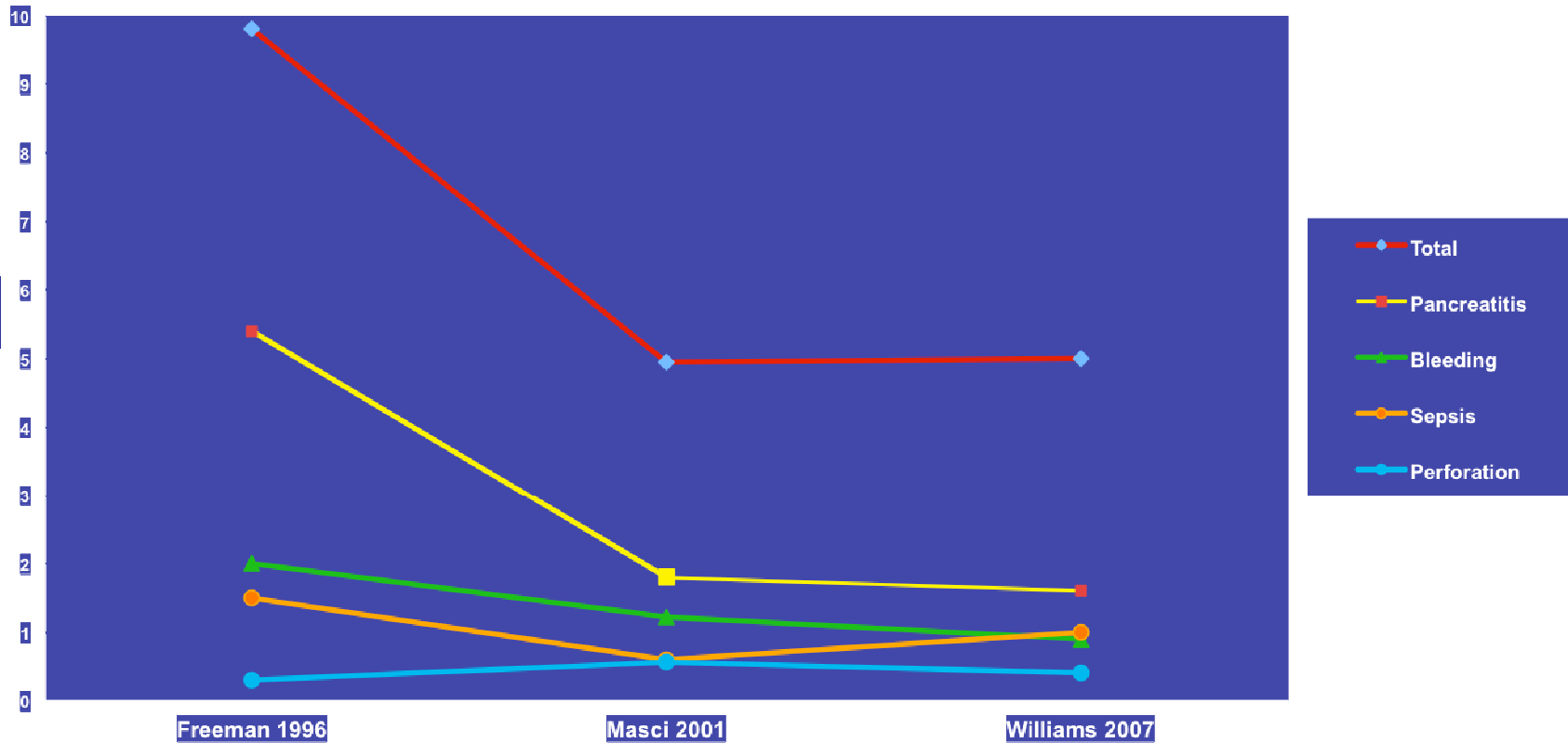


.....As to diseases make a habit of two things: to help, or at least, to do no harm.....

**Hippocrates, *Epidemics***

*Greek physician (460 BC - 377 BC)*

# Overall complication rate of ERCP



## Large prospective multicenter studies

*Freeman, NEJM 1996; 335: 909-918; Masci, Am JGE 2001; 96: 417-423;  
Williams, Endoscopy 2007; 39: 793-801*

## Post-ERCP AP

- Incidence:
  - unselected patients 0.4% – 3.6%
  - high-risk patients 7.8% – 29.2%
- Onset: 2 – 6 h after ERCP (median 4.5 h)

**Table 3.** Risk Factors of PEP on Univariate Analysis

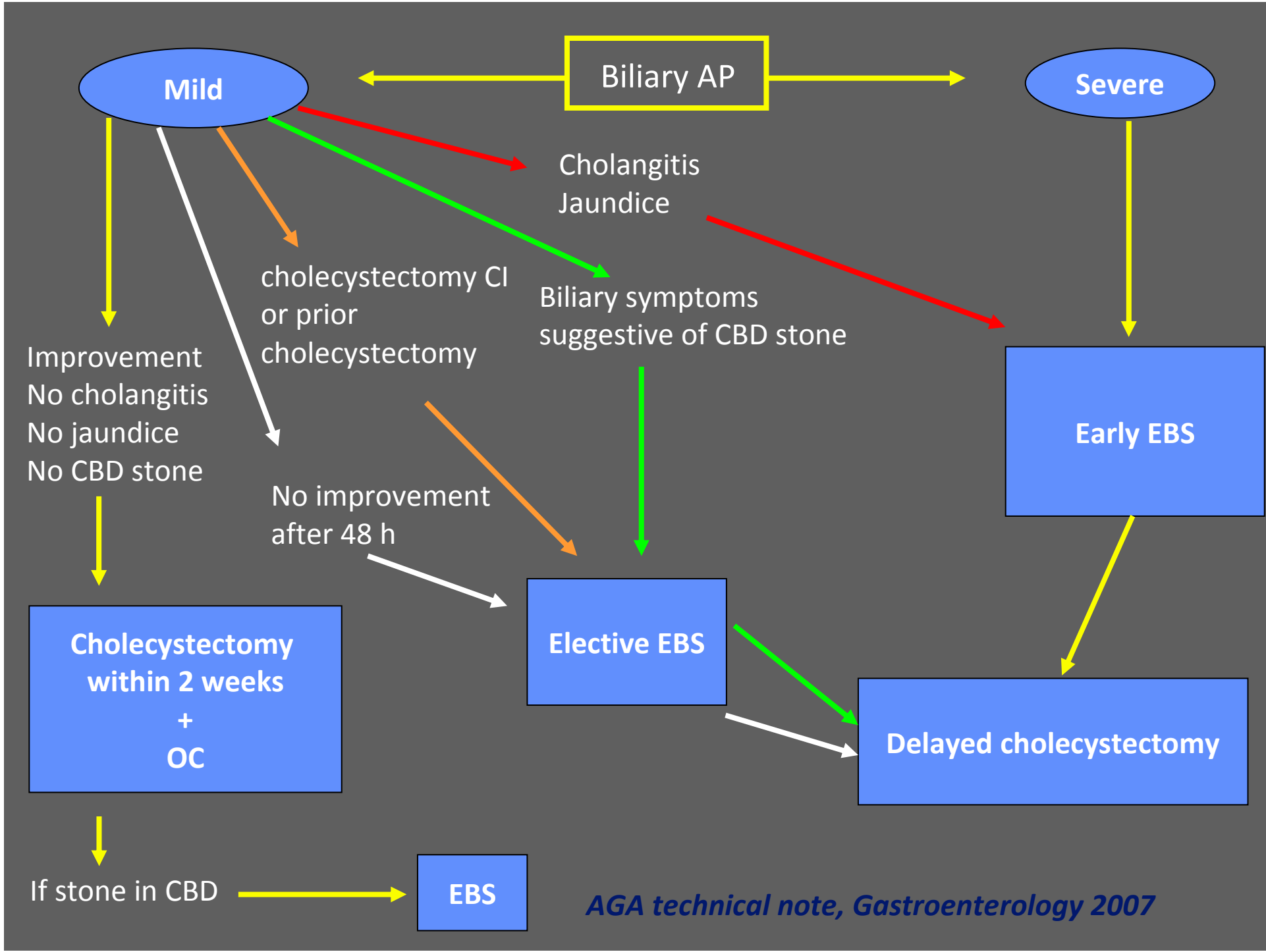
	<i>P</i> value
Pancreatography first	<.001
P-tissue sampling; cytology + brush	<.001
EBD without ES	.001
C-tissue sampling; biopsy	.001
Nonplacement of PSDS after ERCP	.001
Procedure time: $\geq 30$ min	.010
IDUS (P-IDUS and C-IDUS)	.015
Mean cannulation time	.018
P-tissue sampling by any methods	.020
P-IDUS	.024
Difficulty of cannulation ( $\geq 15$ min)	.091
C-IDUS	.094

## ERCP during AP

- CBD cannulation technically challenging
- Duodenal oedema

	Mild AP	Severe AP	p
CBD cannulation	279/308 90.6%	26/36 72.2%	0.003

*Gabbrielli et al, World J Gastrointest Endosc 2010; 2: 308-313*

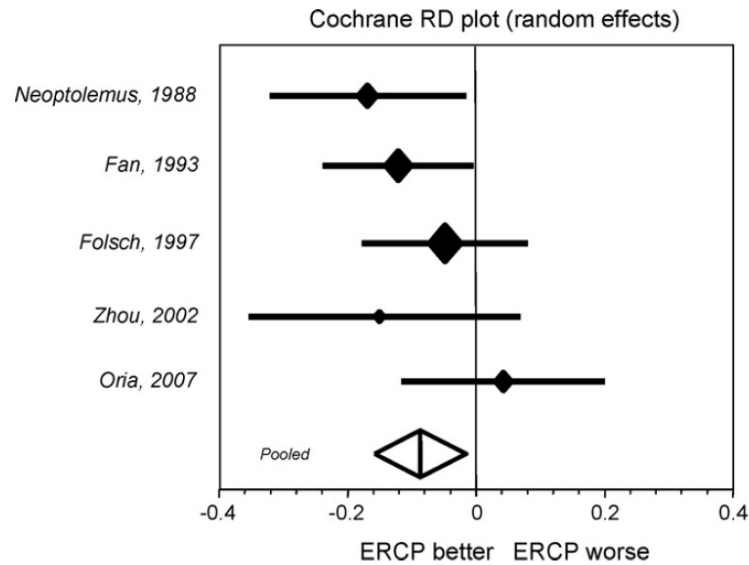






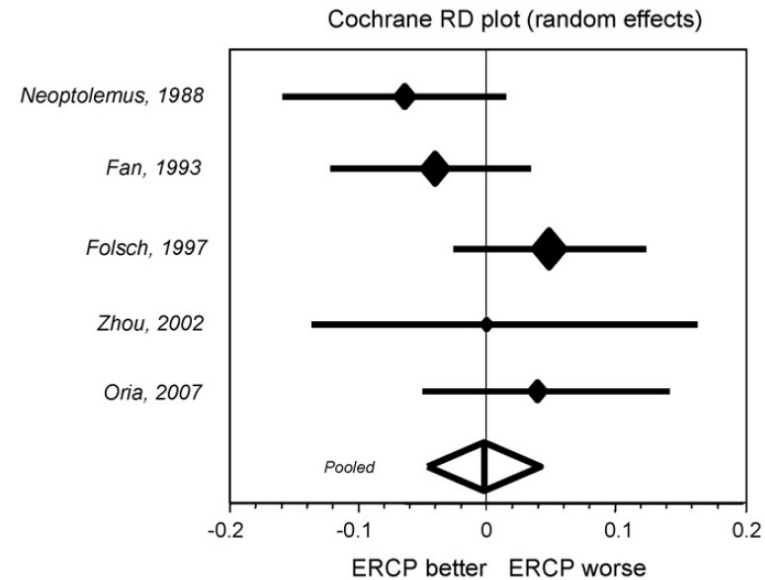
# All patients

## Complications



**p=0.01**  
**NTT = 12**

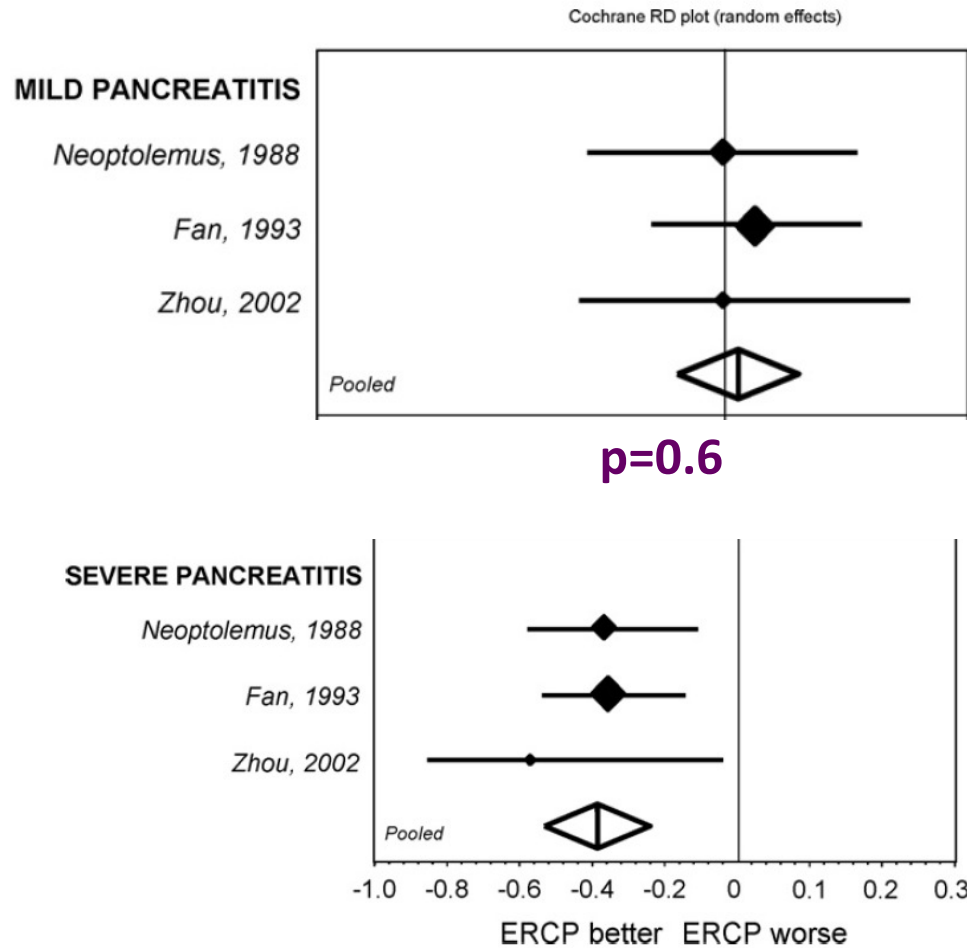
## Mortality



**p=0.9**

*Moretti et al, Dig Liv Dis 2008; 40: 379-385*

# Subgroup analysis



**p=0.6**

**p<0.0001**

**NTT = 3**

*Moretti et al, Dig Liv Dis 2008; 40: 379-385*

*Quality in Endoscopy: ERCP, Munich 2011*

# Early ERCP in acute biliary pancreatitis

## Meta-analysis of early ES in acute biliary pancreatitis

Year	Author	No. of RCTs (patients)	Outcomes
2006	Heinrich et al	3 (445)	↓ Overall complications and mortality
2008	Moretti et al	5 (702)	↓ Pancreatitis-related complications Mortality not affected
2008	Petrov et al	3 (450)	Overall complications and mortality not affected in the absence of cholangitis

*Heinrich et al, Ann Surg 2006;243:154 –168*

*Petrov et al, Ann Surg. 2008 Feb;247(2):250-7*

*Talukdar and Vege, Clin GE Hepatol 2009; 7: S3-S9*

# Early ERCP in acute biliary pancreatitis without cholangitis

**TABLE 1.** Summary of Study Characteristics for the Included Trials

Study	No. Patients		Time to ERCP	Definition of Cholangitis	Criteria of Predicted Severe ABP	No. Patients with Predicted Severe ABP		Criteria of ABP
	Early ERCP Group	Conservative Treatment Group				Early ERCP Group (%)	Conservative Treatment Group (%)	
Neoptolemos et al <sup>16</sup>	53	57	<72 h of admission	Not stated	Glasgow $\geq 3$	20 (38)	25 (44)	Gallstones on US or cholestatic laboratory abnormalities
Fölsch et al <sup>18</sup>	126	112	<72 h of onset	Bilirubin >5 mg/dl (90 $\mu\text{mol/L}$ )*	Glasgow $\geq 3$	26 (23) <sup>†</sup>	20 (18) <sup>†</sup>	Gallstones on US or CT or cholestatic laboratory abnormalities
Oria et al <sup>19</sup>	51	51	<48 h of onset	Charcot's triad	APACHE II $\geq 6$	17 (33)	21 (41)	Gallstones on US or CT
Total	230	220	—	—	—	63 (27)	66 (30)	—

\*Twelve patients had serum bilirubin concentrations higher 5 mg/dL (90  $\mu\text{mol/L}$ ) but were analyzed on an intention-to-treat basis.

<sup>†</sup>Patients were assigned severity score post hoc.

ERCP indicates endoscopic retrograde cholangiopancreatography; ABP, acute biliary pancreatitis; US, ultrasound; CT, computed tomography.

*Petrov et al, Ann Surg. 2008 Feb;247(2):250-7*

# Early ERCP in acute biliary pancreatitis without cholangitis

**TABLE 4.** Meta-Analysis for Overall Complications and Mortality Comparing Early ERCP With Conservative Treatment

	<b>Risk Ratio (95% Confidence Interval)</b>	<b>P</b>	<b>Risk Difference (95% Confidence Interval)</b>	<b>P</b>
<b>Overall Complications</b>				
Predicted mild and severe ABP	0.76 (0.41 to 1.40)	0.38	-0.08 (-0.22 to 0.07)	0.29
Predicted mild ABP	0.86 (0.62 to 1.19)	0.36	-0.05 (-0.13 to 0.04)	0.32
Predicted severe ABP	0.82 (0.32 to 2.10)	0.68	-0.09 (-0.49 to 0.30)	0.64
<b>Mortality</b>				
Predicted mild and severe ABP	1.13 (0.23 to 5.63)	0.88	0.001 (-0.08 to 0.09)	0.97
Predicted mild ABP	1.90 (0.25 to 14.55)	0.53	0.01 (-0.02 to 0.04)	0.40
Predicted severe ABP	1.28 (0.20 to 8.06)	0.80	0.01 (-0.22 to 0.24)	0.91

ABP indicates acute biliary pancreatitis.

*Petrov et al, Ann Surg. 2008 Feb;247(2):250-7*

# Elective ERCP in mild acute biliary pancreatitis

- 1 RCT
    - ERCP + BS followed by LC
    - LC + POC followed by ERCP+BS if stones
- Los and overall costs were lower in the group with LC first

*Chang et al, Ann Surg 2000; 231: 82-87*

# Elective ERCP in severe acute biliary pancreatitis

**TABLE 4.** Timing of Cholecystectomy for Biliary AP

Reference	n	Patient Population	Pretreatment	Timing	Conversion Rate	Morbidity
Uhl et al <sup>94</sup>	35	Mild/moderate AP	No ERC	Early	5/35 (15%)	1/30 (3.3%)
	13	Necrotizing AP	ERC + ES		5/13 (48%)	2/8 (25%)
Schachter et al <sup>95</sup>	19	Mild/moderate AP	ERC + ES	Late	2/19 (10.5%)*	—
Tate et al <sup>96</sup>	16	Mild/moderate AP	ERC + ES	Early	3/24 (12.5%) <sup>§</sup>	2/24 (8.3%)
	8	Severe AP				
Schietroma et al <sup>97</sup>	40	No pancreatitis	None	—	0/40	—
	54	Mild/moderate AP	No ERC	Early	0/54	3/54 (6%)
Boerma et al <sup>93</sup>	19	Severe AP	ERC + ES	Early	— <sup>‡</sup>	1/19 (5.2%)
	56	Choledocholithiasis	ERC + ES	Late	9/44 (20%)	6/44 (14%)
Cuschieri et al <sup>88</sup>	133	Choledocholithiasis	ERC + ES	Early	8/133 (6%)	17/133 (12.8%)

—, not provided in publication.

\*31% severe adhesions, bleeding, or difficult dissection of the hilum.

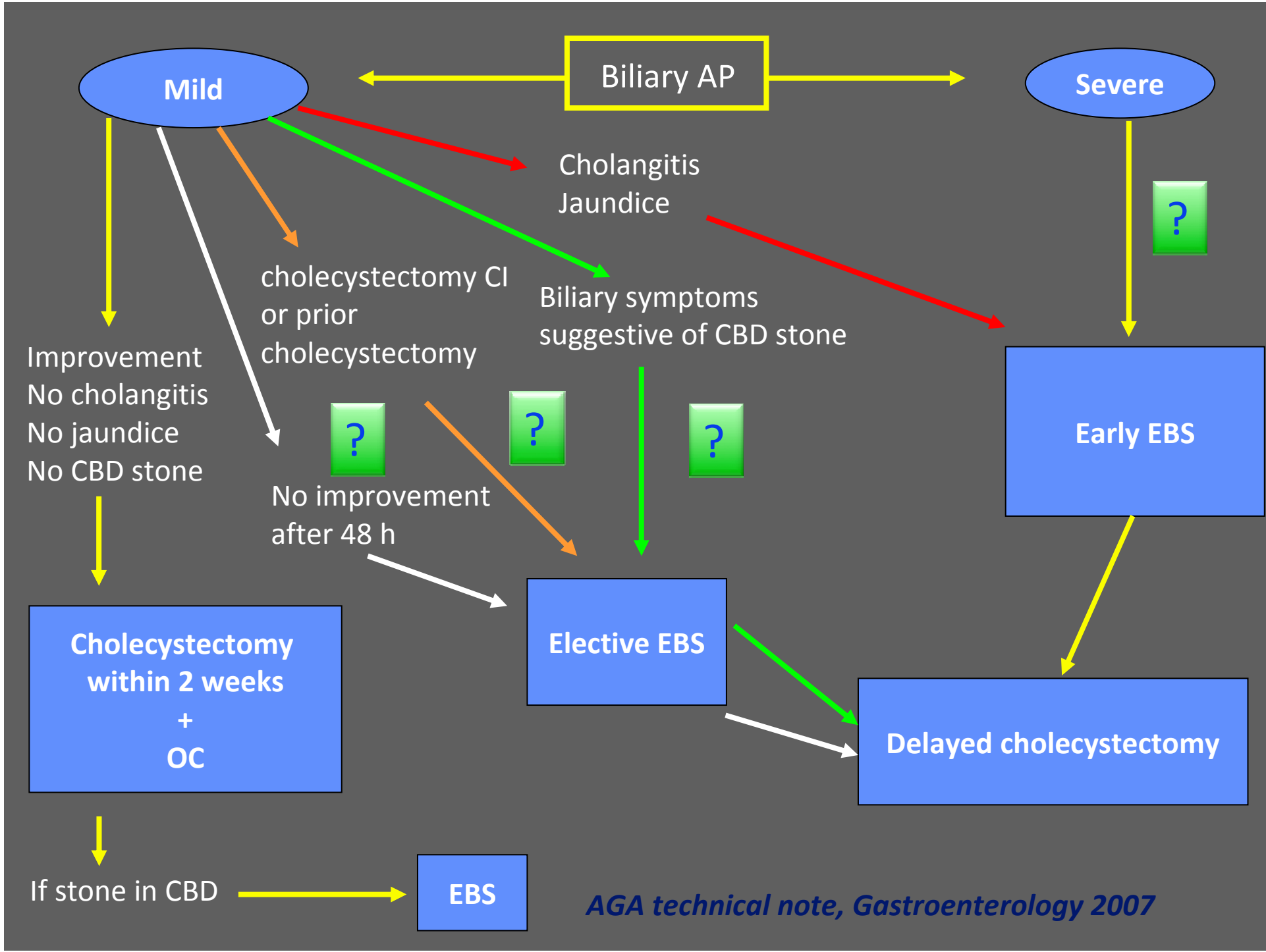
<sup>‡</sup>Five patients were treated by open cholecystectomy.

<sup>§</sup>LC was significantly more difficult than elective LC for chronic gallstone disease.

High conversion rate  
Role of preventive ERCP + BS?

**Heifner et al, Ann Surg 2006;243: 154–168**





## Conclusions

- Early ERCP in ABP
  - Cholangitis
  - Severe AP (probable benefit, but not certain)
  - Obstructive stone (probable benefit, but not certain)
- Patient selection
- Pre-ERCP work-up
  - US
  - MRI
  - EUS

**CBD stone?**

# Ongoing multicenter RCT

