



Bilaga 3 till rapport

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Intraoperativ kolangiografi vidolecystektomi,
rapport nr 292 (2018)

Bilaga 3 Table included clinical articles

Bilaga 3 Intraoperative cholangiography or not in cholecystectomy - included clinical article.

Author Year Reference Country	Study period	N	Age span	Female /Male	Randomisa- tion	Indication for surgery	Primary endpoint Bile duct injury (BDI) Selective or no / routine IOC	Secondar y endpoint	Harms	Follow- up time	Follow up, method	Risk of bias Comments
Buddingh et al 2011 (33) The Netherlands	2004– 2009	856	≥ 18	F: 549 M: 307	Cohort Before 2004- 2006 (n= 421)/ after 2007–2009 (n=435)	All indications for gallbladder surgery Selective 6% IOC Routine 60% IOC	Major 8/0, p 0.004 Minor 7/11, p 0.377	Detection of CBD stones intraoperati ve 4/21		≥ 6 months	Review of patient records	Intermediate risk of bias All major bile duct injuries Routine IOC instituted 2007 and before that selective
Fletcher et al 1999 (34) Australia	1988– 1994	19 176 1 683 OC, 7 493 LC (1988– 1990 7 113 OC 14 LC, 1991– 1992 3 209 OC 2 526, LC 1993– 1994 1 361 OC 4 953 LC61 + 4953)	<55: 10 941 55–64: 3 569 65-74: 3 112 >75: 1 524	F: 13 967 M: 5 219	–	All cholecyste ctomies	BDI 29/8 157, 0.55%/ 15/11 029, 0.24% Bile leaks IOC 0.23% no IOC 0.54% Injuries+bile leaks OR 0,50 (95% CI, 0.35; 0,70) p=0.0001	–		30 days	≥ 2 days readmissi on	Intermediate risk of bias “Major bile complications” Shift in operative techniques during the study time, from open surgery only to predominantly laparoscopic

Flum et al 2001 (36) USA	1991– 1998	30 639 LCs			Register cohort Washington state		Major BDI 37/11 116 / 39/19 514 The rate of major injury in laparoscopic cholecystectomies performed without IOC was 3.3/1 000 compared with 2.0/1 000 in LCs with IOC RR=1.7 (95% CI, 1.1; 2.6)					Intermediate risk of bias All injuries major
Flum et al. 2003 (35) USA,	1992– 1999	1 570 361	–	–	Register cohort Medicare		5 531/956 655 (0.58%) / 2 380/ 613 706 (0.39%) p <0.001, RR=1.71 (95% CI, 1.38; 2.28)	–		1 year	Search for ICD9 codes	Intermediate risk of bias –surgical repair of CBD
Giger et al 2011 (37) Switzerland,	1995– 2005	31 838	Mean age 54.4	Ratio 2:1	–	All cholecyste ctomies	61/20 196 (0.3%) / 40/11 642 (0.3%) p=0.755 BDI detected postoperatively IOC 4/40 (10%) No IOC 5/61 (8%) p=0.737	–	2/101 with BDI died 41/31 737 without BDI died OR 15.6 (95% CI, 3.7; 65.4)	Not stated–	–	Intermediate risk of bias All types of BDI <i>“Reasons for BDI were reported by the surgeons as follows: inadequate surgical exposure (12, 11,9 per cent), bleeding in Calot’s triangle (3, 3,0 per cent) and technical problems with the equipment (2, 2,0 per cent). In the remaining 84 patients (83,2 per</i>

												<i>cent), the surgeons were not aware of any conditions that complicated LE and/or promoted BDI."</i>
Ragulin Coyne et al 2013 (38) USA	2004– 2009	Total: n=111 815 Selective: n=98 790 Routine: n=13 025	18–95	Male Routine 33.1% Selective: 34%	Register Nationwide Inpatient Sample Routine IOC surgeons (n=513), IOC rate of cholecystect omies=96% Selective IOC surgeons (n=4 227), IOC rate of cholecystect omies=25%	LC	BDI 257/98 790, 0.26% / 33/13 025, 0.25% Routine IOC provider vs selective OR 0.96 (95% CI, 0.66; 1,41) Multivariable		Routine IOC provider vs selective In-hospital complications cardiovascular /myocardial infarction/deep venous thrombosis, gastrointestina l, pulmonary, urinary, infection OR 1.10 (95% CI, 1.02; 1,20) In-hospital mortality OR 1.03 (95% CI, 0.76; 1,39)	-	-	Medium risk of bias Only surgeons with 10 or more cholecystectomies per year Type of BDI not specified. "Common BDI"
Sheffield et al 2013 (39) USA	2001– 2009	92 932	> 66 (average 75)	F: 57 352 M: 35 580	Retrospectiv e cohort Medicare + claims databases	Cholecystit is biliary colic or dyskinesia	BDI No IOC 201/55 399, 0.36% With IOC 79/37 533, 0.21% OR 1.79 (95%CI, 1.35; 2.36) multilevel logistic regression OR 1.26 (95%CI, 0.81; 1.96) after control for	-	-	1 year	Patient records	Medium risk of bias "Patients with CPT or ICD-9 procedure codes for choledochojejun ostomy or hepaticojejunosto my within 1 year of surgery were considered to

							confounding with instrumental variable analysis					<i>have had a major common duct injury during cholecystectomy</i>
Waage et al 2006 (40) Sweden	1987– 2001	152 776	>15	Ratio 2:1	Register	All cholecyste ctomies, OC and LC	BDI 280/57 595 / 333/94 569 OR 0.66 (95% CI; 0.54; 0.79) multivariable BDI omitting patients with CBD stones IOC/no IOC OR 0.75 (95% CI; 0.59; 0.92) multivariable	-		1 year		Medium risk of bias <i>“To define BDI cases, we first selected patients in this population who during the index procedure or within 1 year after it had also undergone any reconstructive biliary procedures registered using ICD-9 and ICD-10 procedure codes”</i> <i>“There was a small to moderate long-term increase in the risk of BDI after the introduction of laparoscopic cholecystectomy compared with the prelaparoscopic era.”</i>

Reference numbers refers to the main document

BDI = Bile duct injury; CBD = Common bile duct; IOC= Intraoperative cholangiography; LC = Laparoscopic cholecystectomy

References

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