

Comment on: Routine *versus* selective intraoperative cholangiography during cholecystectomy: systematic review, meta-analysis, and health economic model analysis of iatrogenic bile duct injury

Chao-Ming Hung^{1,2}, Po-Huang Lee^{2,3}, Chi-Ming Tai^{2,4}, Wen-Lun Wang^{4,5}, Yi-Ling Wu^{2,4} and Chong-Chi Chiu^{1,5,6,*} 

¹Department of General Surgery, E-Da Cancer Hospital, Kaohsiung, Taiwan

²College of Medicine, I-Shou University, Kaohsiung, Taiwan

³Department of General Surgery, E-Da Hospital, Kaohsiung, Taiwan

⁴Department of Internal Medicine, E-Da Hospital, Kaohsiung, Taiwan

⁵School of Medicine, College of Medicine, I-Shou University, Kaohsiung, Taiwan

⁶Department of Medical Education and Research, E-Da Cancer Hospital, Kaohsiung, Taiwan

*Correspondence to: Chong-Chi Chiu, Department of General Surgery, E-Da Cancer Hospital, No.1, Yida Road, Jiaosu Village, Yanchao District, Kaohsiung 824005, Taiwan (e-mail: chiuchongchi@gmail.com)

Dear Editor

The debate over the selective or routine intraoperative cholangiography (IOC) application during cholecystectomy has continued from the traditional to the laparoscopic era. The opponents of routine IOC criticize its additional cost and ambiguous benefit. Its proponents emphasize its contribution as a roadmap for operative dissection, thus lowering the incidence and severity of bile duct injury (BDI). However, the inclusion criteria of a selective IOC or the timing of the IOC performed were not exactly analysed in the study by Rystedt *et al.*¹. However, BDI may occur prior to IOC or during the subsequent procedures. Detailed description could reflect the actual effectiveness of both routine and selective IOC.

We also advocate routine intraoperative bile duct evaluation to increase the chance of BDI recognition, especially in those with unclear or complex anatomic structures. Early recognition of BDI and immediate repair or T-tube insertion could reduce the severity of morbidity, late severe consequences, and the total medical costs. The outcome is undoubtedly better than that identified later. No research has explicitly proved the necessity of selective IOC turning into a routine application. However, we highly recommend that patients with a clinical experience of

abnormal lab results (e.g. hyperbilirubinaemia, abnormal liver function, increased lipase, or amylase level) or preoperative imaging with dilated common bile duct should receive a selective IOC. This procedure could provide vital information about the potential common bile duct stones. Of course, we should not regard IOC as a substitute for attentive dissection and delineation of the anatomy during the whole course of operation.

Recently, indocyanine green fluorescence cholangiography has emerged with simplicity, safety, and efficiency advantages. It could avoid the disaster of anatomy misinterpretation and BDI during the process of IOC. It is expected to replace IOC as a prioritized procedure for routine intraoperative bile duct evaluation in the future.

Reference

1. Rystedt JML, Wiss J, Adolfsson J, Enochsson L, Hallerback B, Johansson P *et al.* Routine versus selective intraoperative cholangiography during cholecystectomy: systematic review, meta-analysis and health economic model analysis of iatrogenic bile duct injury. *BJS Open* 2021;**5**:zraa032