

Cost-Effectiveness of Laparoscopic Common Bile Duct Exploration vs. Endoscopic Retrograde Cholangiopancreatography in the Emergency Management of Common Bile Duct Stones

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Abstract : Purpose: This study aims to evaluate the cost-effectiveness of laparoscopic common bile duct exploration (CBDE) compared to endoscopic retrograde cholangiopancreatography (ERCP) and cholecystectomy for the emergency management of common bile duct (CBD) stones. Methodology: A retrospective case note review was conducted on consecutive patients undergoing emergency management of CBD stones using either CBDE, or ERCP and cholecystectomy at a single centre between January 2014-October 2014. Data on admission and procedural costs, length of hospital stay, postoperative complications and further stone related interventions were analysed. Results: A total of 350 patients were analysed. Among them, 299 patients underwent CBDE at the time of cholecystectomy, while the remaining 51 underwent ERCP either pre-, intra- or post cholecystectomy. CBDE was associated with lower overall costs compared to ERCP with an average hospital stay cost of \$13,093 vs \$22,930 respectively. This was largely attributed to shorter hospital stays (6.5 vs 10.3 days), decreased need for intensive care unit admission and fewer postoperative interventions within the CBDE group. Notably, single procedure laparoscopic cholecystectomy with CBDE demonstrated decreased operative costs compared to laparoscopic cholecystectomy combined with ERCP pre-/intra- or post-operatively (\$3,747 vs. \$4,641). Conclusion: Emergent CBDE is a cost-effective alternative to ERCP for managing CBD stones when combined with cholecystectomy. The upfront investment in equipment for CBDE and increased cholecystectomy procedural time is counterbalanced by reduced hospital stay, fewer procedures and subsequent cost savings. Economic considerations, in conjunction with clinical outcomes, should inform the selection of the optimal approach for CBD stone management in emergency settings.

Keywords : choledocolithiasis, management, cost-effectiveness, endoscopic retrograde cholangiopancreatography, ERCP, CBDE, common bile duct exploration

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