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Timing of biliary decompression for acute cholangitis

Yang J *et al.* Timing of biliary decompression for AC

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Abstract

Severe acute cholangitis (AC) exacerbates the risk of death because of the rapid progression of the disease. The optimal timing of biliary decompression (BD) as a necessary intervention in patients with severe AC is controversial. Huang *et al* recently reported titled “Timing of endoscopic retrograde cholangiopancreatography in the treatment of acute cholangitis of different severity” in the *World Journal of Gastroenterology* that the optimal time of endoscopic retrograde cholangiopancreatography for treating patients with severe AC is ≤ 48 but not ≤ 24 h, providing clinical evidence for selecting the optimal time for implementation of BD. Here, we discuss the controversy over the optimal timing of BD for AC based on guidelines and clinical evidence, and consider that more high-level clinical researches are urgent needed to benefit the management of patients with different severity of AC.

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Key Words: Acute cholangitis; Biliary decompression; Endoscopic retrograde cholangiopancreatography; Severity; Optimal time; Clinical evidence

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Core Tip: Severe acute cholangitis (AC) exacerbates the risk of death because of the rapid progression of the disease. The optimal timing of biliary decompression (BD) as an intervention for severe AC is controversial. The purpose of this letter is to highlight the controversy surrounding the existing clinical evidence regarding BD for the treatment of AC of varying severity and to suggest that clinical studies providing higher levels of evidence will improve the therapeutic benefits.

TO THE EDITOR

Acute cholangitis (AC) originates as an infection of the extrahepatic biliary system and is usually characterized by rapid progression leading to systemic sepsis. The mortality rate of severe AC may reach 30%^[1]. In most cases, biliary decompression (BD) is necessary to treat patients with severe AC, regardless of the treatment modality chosen [endoscopic retrograde cholangiopancreatography (ERCP), percutaneous transhepatic biliary drainage, or stone removal]^[2]. However, the optimal time at which to implement BD to obtain the maximum therapeutic benefit for patients with AC remains uncertain.

We recently became extremely interested in a retrospective study by Huang *et al*^[3] published in the October 2022 issue of the *World Journal of Gastroenterology*. This was a high-quality observational study with a Newcastle-Ottawa Quality Assessment Scale score of 7 (3, 2, 2)^[4]. It was independently assessed by two of our authors, and disagreements were resolved by a third author. Based on a retrospective analysis of 683 patients with AC, the conclusions drawn by the authors properly summarize the data in the study. The authors' data indicated that 30-d mortality in patients with AC was not significantly different between ERCP performed at > 24 and ≤ 24 h. However, patients with AC had lower 30-d mortality and a shorter length of stay when ERCP was performed at ≤ 48 h. Additionally, patients with grade III AC had lower 30-d mortality rates than patients with grade I and II AC, although they had higher intensive care unit admission rates and longer lengths of stay^[3]. Huang *et al*^[3] suggested that a ≤ 48-h duration from the patient's presentation to initiation of ERCP therapy, rather than a ≤ 24-h duration, provided the best survival benefit for patients with AC, especially for patients with grade III AC. This unique insight breaks with the traditional treatment concept that earlier performance of BD is associated with better outcomes in patients with severe AC. We thank Huang *et al*^[3] for their study, which provides clinical evidence for the optimal timing of BD in patients with grade III AC.

The 2018 revised Tokyo guideline (TG18) currently serves as the most influential guideline for assessing AC severity. It delineates three grades of assessment of AC severity and indicates that the impact of the BD implementation time on the therapeutic

benefit is significantly correlated with AC severity^[5]. Therefore, we consider that the AC severity characterizes the urgency of the BD implementation time.

Reference Citation Analysis (RCA) (<https://www.referencecitationanalysis.com/>)⁴ is an artificial intelligence technology-based open multidisciplinary citation analysis database. We searched the RCA database for articles in cutting-edge fields in the last 3 years using the search terms “endoscopic retrograde cholangiopancreatography”, “biliary decompression”, and “acute cholangitis”. Recent guidelines and clinical evidence suggest that the optimal timing of BD implementation remains controversial. First, controversy regarding the timing of BD implementation in the guideline exists primarily¹ for patients with grade II and III AC. The American Society for Gastrointestinal Endoscopy (ASGE) 2021 guideline states that important outcome indicators for evaluating the survival benefit in patients with AC are 30-d mortality, inpatient mortality, length of stay, and organ failure^[2]. The guideline also suggests that performance of ERCP at ≤ 48 h may be³ associated with lower 30-d mortality and a shorter length of stay^[2]. However, the ASGE 2021 guideline does not report the correlation between the time to BD implementation and AC severity because the available clinical evidence is insufficient^[2]. TG18 states that BD in patients with grade II AC should be performed within 24 h, and although clinical data do not indicate the optimal time for BD in patients with grade III AC, urgent decompression (within 24 h)¹¹ may improve the prognosis of patients with grade III AC^[5]. The European Society of Gastrointestinal Endoscopy 2019 guideline states that for patients with severe AC (grade III), implementation of BD is recommended within 12 h; for patients with moderate AC (grade II), it should be performed within 48 to 72 h^[6]. Second, recent clinical studies have produced controversial results in terms of early implementation of BD¹ for patients with grade III AC. In addition to the study by Huang *et al*^[3] discussed herein (BD at ≤ 48 but not ≤ 24 h), another retrospective study by Lu *et al*^[7] showed that BD is recommended at 24 h of admission for patients with grade III AC and within 12 h for those with AC accompanied by neurological or cardiovascular dysfunction. However, a study by Becq *et al*^[8] using a propensity score matching approach indicated that the use of BD within 6h or 12 h of AC

onset was not associated with better clinical outcomes, but possibly reduced readmission rates. Finally, the results of three recent systematic reviews and meta-analyses suggest that the controversy over the optimal timing of BD is mainly focused within 24 h and 48 h based on data analysis of superior outcomes within their respective time zones^[9-11]. However, the three studies did not report that the optimal timing of BD affects survival outcomes in populations with different severities of AC (*i.e.*, grades I, II, and III)^[9-11].

Based on the above-mentioned current controversies, we present the following future outlook. First, because of the controversy in the current guidelines and among recent clinical studies regarding the optimal timing of BD ¹for patients with grade II and III AC, a multicenter prospective cohort study or randomized controlled trial should be conducted. Second, the medical community is called upon to pay attention to the clinical studies that have been reported and to perform systematic reviews and meta-analyses on the optimal time to implement BD ⁷for the treatment of patients with grade II and III AC.

In conclusion, a higher level of clinical evidence regarding the optimal time to implement BD in patients with different severities of AC is needed to improve the therapeutic benefit.

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