

# Overuse of piperacillin-tazobactam for the treatment of acute cholangitis

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## AIM

- According to the 2018 Tokyo Guidelines (TG18) clinical practice guidelines, broad-spectrum antibiotics such as piperacillin-tazobactam (P/T) should be reserved for patients with moderate to severe acute cholangitis<sup>1</sup>. However, the treatment of acute cholangitis often leads to the use of potent broad spectrum agents such as P/T, even in patients with less severe infections. We reported such prescribing habits in a previous study on intra-abdominal infections<sup>2</sup>.
- Recent evidences indicate that a shorter treatment duration is appropriate when successful biliary drainage is obtained, even in bacteremic patients<sup>3,4</sup>.

### Primary objective

- To describe the initial antibiotic regimens for the treatment of acute cholangitis in patients undergoing ERCP

### Secondary objectives

- To describe the duration of antibiotic therapy after resolution of obstruction following ERCP
- To describe the proportion of patients who received IV-to-po stepdown
- Compare initial antibiotic treatment observed with recommendations of published clinical guidelines (eg Tokyo Guidelines) for antibiotic choice and duration of treatment

## METHODS

- Retrospective descriptive cohort study from medical records

### Inclusion criteria

- Patient aged 18 and older, admitted for the treatment of acute cholangitis (ICD-10 codes K80.0, K80.3, and K80.4)
- Antibiotic treatment must have been initiated in one of the five hospitals of the CHU de Québec-Université Laval.
- Period under study
  - January 1, 2021 to December 31, 2023
- Hospital stay of at least 24 hours.
- Received at least one dose of antibiotic for the treatment of acute cholangitis
- Patients must have undergone endoscopic retrograde cholangiopancreatography (ERCP)

### Exclusion criteria

- Less than 18 years of age
- The patients transferred from other centers were excluded

### Severe infection defined by

- TG18/TG13 severity assessment criteria Grade 3

## RESULTS

- 116 patients were included in the study;\*
- Piperacillin-tazobactam was the most commonly used antibiotic for the treatment of acute cholangitis, regardless of infection severity;
- We found only 1/53 (3.6 %) bacteremic patients for which the isolated microorganism (an Enterococcus) was non-susceptible to the initial treatment.
- Stepdown to oral therapy was done in 90/116 patient (77,6 %)
  - 63 (70 %) were treated with amoxicillin-clavulanate;
  - 12 (13,3 %) were treated with ciprofloxacin only;
  - 11 (12,2 %) were treated orally with ciprofloxacin + metronidazole.
- The median (IQR 25-75) duration of antibiotic treatment after oral step-down was 6 (4-7) days

\*One patient had to be withdrawn from the cohort described in the abstract because we found a posteriori that she had been transferred from another center and should thus have been excluded.

Table 1. Patient characteristics

		n=116
Mean age	years (SD)	72,4 (16,0)
Female sex	n (%)	59 (46,2)
Mean SCr on admission	μmol/l (SD)	98,9 (75,7)
Comorbidities	n (%)	
▪ Diabetes		37 (31,6)
▪ Immunosuppression		6 (5,1)
▪ Chemotherapy		4 (3,4)
Documented allergies	n (%)	
▪ Penicillin		13 (11,1)
▪ TMP-SMX / Sulfonamides		2 (1,7)
▪ Quinolones		2 (1,7)
▪ Other		1 (0,9)
Tokyo Grade	n (%)	
▪ Grade I		46 (39,7)
▪ Grade II		45 (38,7)
▪ Grade III		25 (21,6)

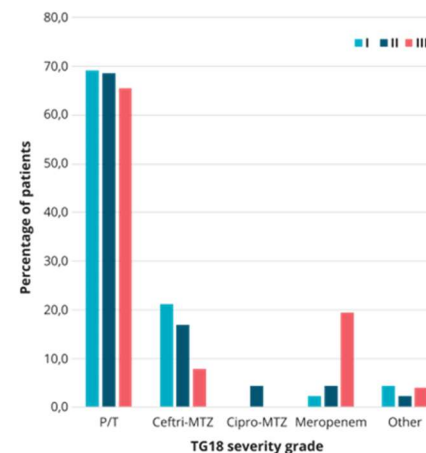
Table 2. Initial antibiotic treatment for cholangitis (n=116)

	n (%)
Piperacillin-tazobactam (P/T)	82 (70,7)
Ceftriaxone+Metronidazole (Ceftri+MTZ)	20 (17,2)
Meropenem	8 (6,9)
Ciprofloxacin + Metronidazole (Cipro+MTZ)	2 (1,7)
Other	4 (3,4)

Table 3. Treatment duration and length of stay

	Median no of days (IQR 25-75)
Total duration of antibiotic treatment	9 (8-12)
▪ Positive Gram + blood cultures	13 (11,25-16,75)
Treatment duration post-ERCP	7 (5-10)
▪ Positive blood cultures	9 (7-11)
▪ Negative blood cultures	6 (4-7)
Treatment duration after oral stepdown	6 (4-7)
Total antibiotic duration according to TG18 severity grade upon admission	
▪ I	9 (7-11)
▪ II	9 (8-11)
▪ III	12 (10-15)
Length of hospital stay	4 (3-8)

Figure 1. Initial antibiotic treatment, according to TG18 severity grade



## CONCLUSION

- Patients with mild to moderately severe acute cholangitis were treated predominantly with P/T, despite the fact that this antibiotic is recommended principally for more severe infections.
- P/T was by large the most frequently used antibiotic, regardless of the severity of the infection.
- The duration of treatment for our patients was also longer than recommended in the guidelines, especially for patients with grade I or II.
- The results of this study will be presented and discussed with the gastroenterologists and used for the update of our local guidelines for the treatment of intra-abdominal infections.

## REFERENCES

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