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Risk factors for mortality in patients with acute bacterial cholangitis: type 2 diabetes is a significant clinical predictor

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Running head: Survival rates in acute cholangitis

Keywords: survival rates, cholangitis, adults.

Acute cholangitis is a life-threatening infection and several features are associated with worse prognosis if prompt treatment is not started (1, 2).

Eighty-six subjects with acute cholangitis were included in our retrospective analysis. Patients had a median age of 53 years (range: 34.5 to 70), and 55 (64.0%) were women. Of the whole cohort, 16 patients had a history of diabetes mellitus. Regarding acute cholangitis severity, 17 (19.8%) cases were classified as severe, 41 (47.7%) moderate, and 28 (32.6%) mild. Median length of stay (LOS) was 7 days (IQR: 4–11). Patients with severe cholangitis had a mean LOS of 12.64 (± 10.59) vs. 8.11 (± 10.95) in those without severe cholangitis ($p=0.020$).

Five (5.8%) deaths were documented during hospitalization; 3 (18.8%) had a previous history of diabetes mellitus vs. 2 (2.9%) deaths in the group of patients without diabetes ($p=0.014$). The group of patients with cognitive impairment at admission had 4 deaths vs. 1 death in those without this clinical condition ($p<0.001$). Patients who died had a significantly higher mean serum lactate and INR at admission 2.91 vs. 1.06 ($p=0.005$) and 2.49 vs. 0.89 ($p=0.015$), respectively. In univariate and multivariate analysis, only the presence of diabetes was statistically significant (**Table 1**).

Patients with diabetes are twice as likely to be hospitalized with an infection and die of infection-related death than the general population (3). Diabetes was the only variable that remained statistically significant after multivariate analysis. It appeared to be associated with a 7-fold risk for mortality in our group. This factor should be taken into account during the therapeutic approach in the emergency department and decide if the patient will be on an urgent ERCP. Further prospective studies are needed, but we should pay particular attention to this specific group of patients to improve severity assessment and treatment recommendations.

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Table 1. Risk factors for 30-day mortality in patients with acute biliary cholangitis; logistic regression.

Variable	n= (%)	Univariate HR (95% CI)	p=	Multivariate HR (95% CI)	p=
Gender					
Male	31 (36)				
Female	55 (64)	1.195 (0.189-7.572)	0.850	2.598 (0.172-39.269)	0.491
Age					
<60 years	39 (45.3)				
≥60 years	47 (54.7)	5.257 (0.562-49.134)	0.146	1.569 (0.055-44.789)	0.792
Fever					
Yes	33 (38.4)				
No	53 (61.6)	0.383 (0.041-3.582)	0.400	0.302 (0.018-5.140)	0.408
Ictericia					
Yes	75 (87.2)				
No	11 (12.8)	0.188 (0.028-1.277)	0.087	0.096 (0.003-3.315)	0.195
Choluria					
No	39 (45.3)				
Yes	47 (54.7)	0.793 (0.126-5.001)	0.805	0.224 (0.002-21.552)	0.521
Acholia					
Yes	34 (39.5)				
No	52 (60.5)	1.021 (0.162-6.452)	0.983	6.431 (0.348-155.929)	0.477
White blood cells					
≥15 x10 ⁹ /μL	43 (50.0)				
<15 x10 ⁹ /μL	43 (50.0)	0.232 (0.025-2.168)	0.200	0.632 (0.030-13.188)	0.767
Bilirubin					
≥5 mg/l	49 (57.0)				
<5 mg/l	37 (43.0)	0.172 (0.018-1.608)	0.123	0.130 (0.007-2.354)	0.167

Diabetes

Yes	16 (18.6)					
No	70 (81.4)	7.846 (1.191-51.677)	0.032	6.933 (1.119-355.028)	0.042	

Hypertension

Yes	28 (32.6)					
No	58 (67.4)	3.360 (0.528-21.375)	0.199	2.703 (0.105-69.668)	0.549	

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