

Impact of Age on Outcomes in Hospitalized Patients with Cholangiocarcinoma: A Nationwide Analysis (NIS 2016-2021)

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Introduction



Cholangiocarcinoma (CCA) is a rare, heterogeneous constricting malignancy of the bile duct epithelium. Represents 10–20% of primary lancers and the common primary malignancy.

Anatomical Subtypes

Interhepatic CCA (CCA): 10–20% of caase
Extrahepatic CCA (SCCA);
Bilal (DCCA): 20–30%

Epidemiology

U.S. age-adjusted incidence increased 43.8% between 2011–2017 (0.08 → 4.43 per 100,000 person years), life >7% th ICCA aeredes ar the th–8h paneens are order than 50 years.

Knowledge Gap

Although age is strongly associated with CCA incidence¹, its independent impact on clinical outcomes, complication rates Healthcare utilization remains poorly understood.

Objectives

We aimed to examine the association between age and clinical outcomes, including mortality, complications, length of stay, and discharge nonnems, during hospitalized patients anzl dishangiocarcinoma using a rationally representative sample.

Methodology

Study design: We conducted a retrospective schort study using the National Inpatient Sample (NIS) database from 2016 to 2021¹.

Inclusion: Adults aged >19 years with a diagnosis of cholangiocarcinoma were identified using ICD-10-CM codes (C22.1, C24.0, C24.8, C24.9).

Patients were categorized into five age groups: <50, 50-59, 60-69, 70-79, and ≥80 years.

Outcomes included in hospital mortality, discharge disposition, length of stay, total charges, elective advisation status, and complications (sepsis, acute lithery injury (AKI), liver failure, mechanical ventilation).

Logistic regression models were adjusted for race, sex, income, insurance, hospital characteristics, and year.

Figures/Tables

Table 1: Adjusted Odds Ratios Forest Plot

Outcome	50-59 ym	60-69 ym	60-89 ym	≥ 90 ym
In-hospital mortality	1.25* (0.59-1.59)	1.58*** (1.36-1.57)	1.74*** (1.41-1.48)	1.80*** (1.49-2.48)
Elastic admission	1.07 (0.59-1.55)	1.13** (1.39-1.59)	1.13** (1.33-1.29)	0.84* (0.71-0.27)
Prolonged LOD	1.07 (0.59-1.59)	1.07 (0.58-1.29)	1.15* (1.22-1.29)	1.20 (0.81-1.79)
Sepsis	1.06 (0.35-1.59)	1.11* (1.01-1.18)	1.16* (1.80-1.39)	1.26*** (1.04-1.29)
Acute Kidney Injury (AKI)	1.39*** (1.23-1.37)	1.80*** (1.01-1.16)	1.80*** (1.54-1.38)	1.94*** (1.01-1.16)
Mechanical ventilation	1.81 (0.46-1.38)	1.41* (1.36-1.18)	1.43 (1.60-1.28)	1.22 (1.64-1.39)
Liver failure	0.82 (0.55-1.59)	0.95 (0.81-0.12)	0.78** (0.83-0.64)	0.84*** (0.33-0.55)

*p < 0.01, ** p < 0.01, *** p < 0.001 in different group (youngest, real closed).

LGS = length of stay CI = confidence interval.

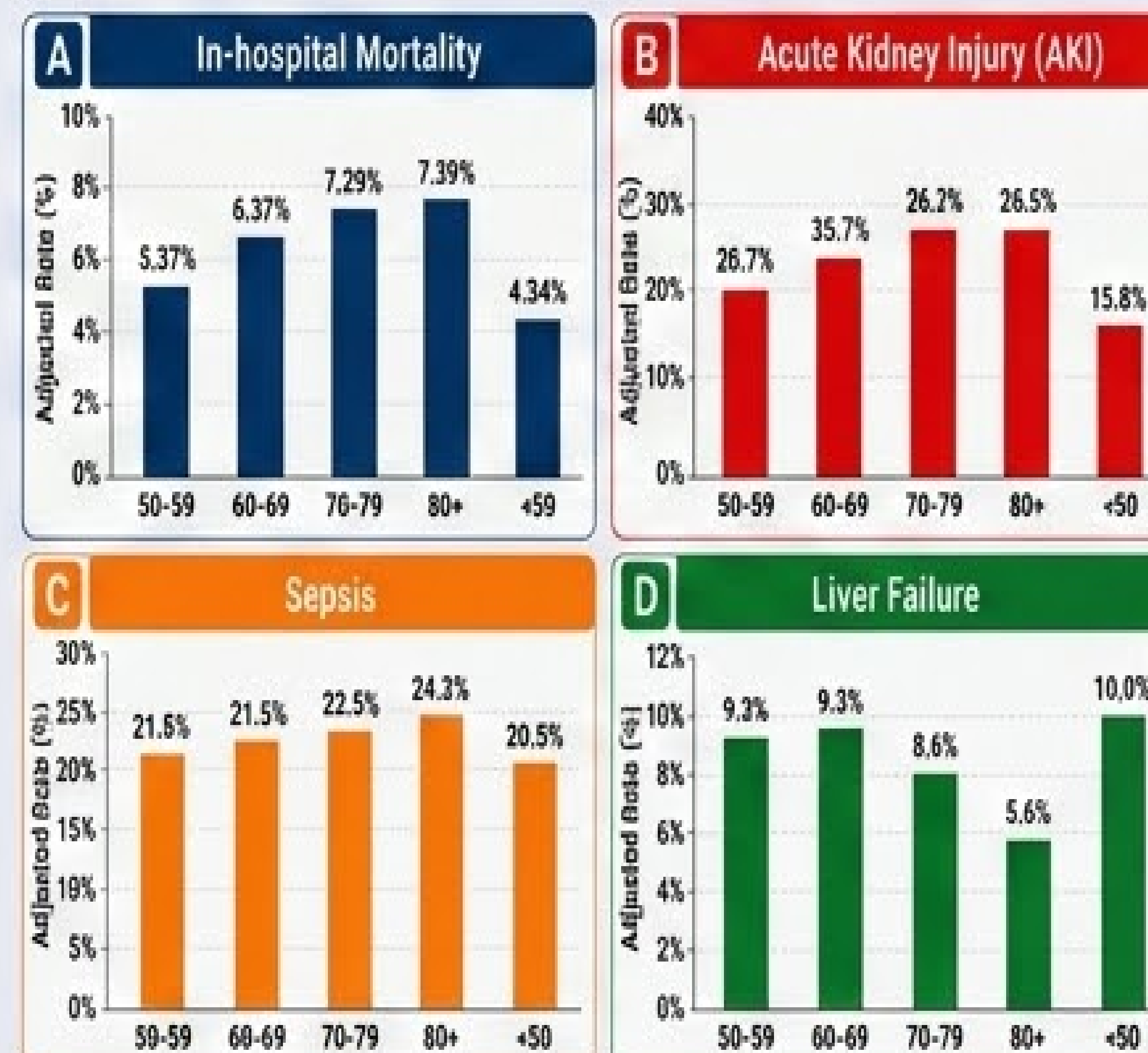


Figure 1: Bars unlooned by age group

Results & discussion

Patient Demographics

Cohort size: >80 years represented 16.4%; <40 years represented 0.7%

Age-related difference: Significant across all characteristics ("p" < 0.001 for all comparisons)

Sex: Highest proportion of males in 60–69 years (54.3%); lowest in 160 years (50.2%)

Race: Hiwee patients highest in >80 years (72.3%); Hispanic and African American patients mere common in <30 years (17.9% and 14.6%, respectively)

Socioeconomic Factors

Insranc: Highest income quartile most common in 380 years

Insurance: Marked age gradient — Medicare rase from 8.5% (<50 yrs) to 91.5% (250 yrs). Private insurance fall from 56.8% to 5.1%

Hospital Characteristics

Teaching status: Older patients less likely treated at uthan teaching hospitals (77.8% for 380 yrs vs. 87.6% for <50 yrs)

Rural hospitats: Increased with age — 4.6% (z80 yrs) vs. 2.5% 65.9% (=50 yrs) vs. 39.8% (z80 yrs)

Geographic region: No consistant age trend across regions

Conclusion

Older age independently predicts worse outcomes — including higher mortality, dramatically increased RO risk, greater sepats rates, and lower likelihood of home discharge.

Peradusical rinding: Liver failure risk decreased with age (280 yrs. OR 0.54***) — warrants further investigation.

Clinical & policy impliciation — Age-specific management, enily AKI prevention, enhanced discharge planning, and resource allocation are needed for equitable care in this growing patient.

References

1. Mathew, T.A., et al., *Impact of Race on Admission, Clinical Outcomes, and Disposition in Cholangiocarcinoma*. Insights from the National Inpatient Database. Knoxville, 2020, 79(11), p. 211.
2. Quality, A.T.H.R.A., *Introduction to the HCUP National Inpatient Sample (NIS) 2020, 2020*. Rockville, Mill.