



Diagnostic and Therapeutic Interventions in Acute Variceal Bleeding; Trends, Mortality and Outcome Comparisons by Timing of Procedures, NIS 2004-2019



Introduction

Acute variceal bleeding (AVB) has a high mortality. Endoscopy should be done as soon as possible within 12 hours of presentation. We aimed to analyze practice patterns of management and outcomes of AVB hospitalizations and associated procedure trends and outcomes across the U.S.

Methods

We extracted adult hospitalizations from Nationwide Inpatient Sample (NIS) 2004-2019 with ICD-9 and ICD-10 diagnosis codes of AVB (456.0,185.01) and associated procedure codes for esophagoscopy (EGD) and esophageal variceal ligation(EVL)(42.22,42.23,42.33,42.91,44.43,45.13,49.95,0DJ08ZZ,0W3P8ZZ,06L38CZ,06L34CZ).

We divided the timing of procedures into early < 24hrs and delayed >24hrs. Mortality, length of stay (LOS) and mean charges (MC) were used as outcomes and compared between early and delayed procedure groups.

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Results

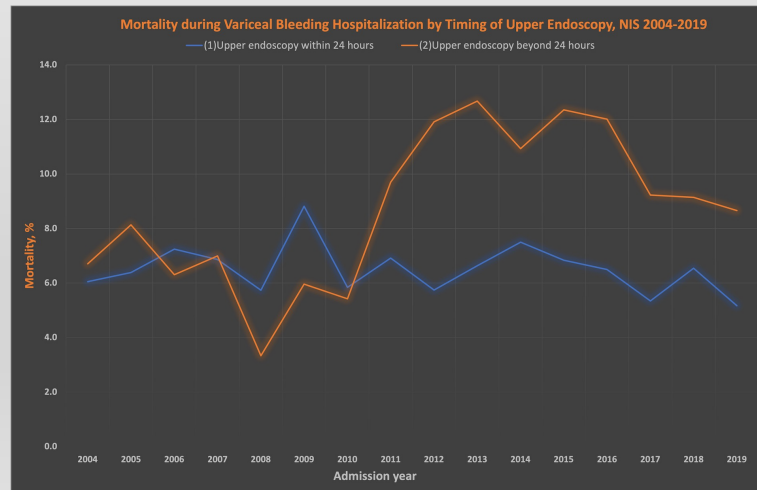
AVB hospitalizations have increased across the 16 years from 4,798 in 2004 to 8,095 in 2019, with a peak during the ICD coding transition time in 2016 (9,280). 76-80% of EGDs were performed within 24hrs, while 20-24% were beyond 24hrs. Overall, there has been no significant change in the proportion of procedure timing. There was significant male-to-female predominance (69% vs. 31% in 2004- >63% vs. 37% in 2019). The racial distribution was similar across the years with a minor increase in Native American/Other and Asian or Pacific Islanders and a decrease in the Black patient population (2019: 62% White, 8.3% Black, 20% Hispanic, 3.7% - Asian or Pacific Islanders, 5.9%-Native American/Other). A shift of hospitalizations was noted towards teaching institutions (39% in 2004 to 74% in 2019).

Results

Up to 2.6% of patients in 2011 have left against medical advice. Mortality of early and delayed procedure groups is demonstrated. Overall mortality was 6.4% (95% CI: 6.02%-6.83%) in the early and 9.1% (95% CI: 8.18%-10.01%) in the delayed group. MC has increased, by +Δ \$62,527.00 for early and +Δ \$105,406.00 for the delayed group. Mean LOS was 5 days (95% CI 5.0-5.1) for early and 9 (95% CI 8.8-9.4) for the delayed group.

Conclusion

Acute variceal bleeding hospitalizations and associated diagnostic and therapeutic procedures have increased over 16 years. Most EGD and EVL were performed in < 24 hours from admission, with up to 20-24% beyond 24hrs. Inpatient mortality has been notably higher for AVB hospitalizations with delayed interventions. Early and timely interventions should be strongly encouraged and promptly performed to decrease the mortality during these admissions.



Mortality of Variceal Bleeding Hospitalizations by Timing of Upper Endoscopy, NIS 2004-2019