



ABSTRACT BOOK



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Neurology & Neurosurgery Session

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The Impact of Chronic Anticoagulation on ICU Outcomes in Ischemic Stroke Patients: A Retrospective Cohort Analysis from MIMIC-IV

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Introduction

Stroke remains a leading cause of morbidity and mortality, often requiring intensive care management. However, the impact of chronic anticoagulation on survival and complications in ischemic stroke patients admitted to the ICU is unclear. This study explores whether prior anticoagulation therapy modifies ICU outcomes.

Aim of the study

To determine if pre-ICU anticoagulation influences ICU survival in ischemic stroke patients and to assess its effects on length of stay, hospital mortality, and major bleeding.

Materials and methods

Using a retrospective cohort design, we examined adult ischemic stroke (ICD-10 I63.) patients in MIMIC-IV admitted to the ICU ≥ 24 hours. We excluded hemorrhagic stroke (I61.), missing medication data, and hospice discharges. Chronic anticoagulation (warfarin, DOACs, or long-term heparin) before ICU admission was our primary exposure; non-anticoagulated patients served as comparators. We collected baseline demographics and comorbidities. Outcomes included ICU and hospital mortality, length of stay, and major bleeding. We performed t-tests and chi-square analyses, followed by Kaplan-Meier survival curves with log-rank tests. Logistic regression modeled ICU mortality, adjusting for age, CHADS-VASc, renal function, and sepsis. Propensity score matching was employed if baseline imbalances arose. Moreover, we performed advanced predictive modeling (logistic regression, symbolic regression, XGBoost), splitting data into 70% training, 10% validation, and 20% testing, and determine the best threshold using Youden's index.

Results

Among the preliminary cohort, 30% were on chronic anticoagulation. Baseline characteristics indicated more atrial fibrillation in the anticoagulated group. Kaplan-Meier analysis showed no significant difference in ICU survival (log-rank $p=0.08$), though trends favored reduced hospital mortality. Adjusted regression gave an OR near unity (OR=1.02, 95% CI 0.85–1.21) for ICU mortality. Preliminary CHADS-VASc-based models yielded an AUC of 0.69, with a slight but nonsignificant rise in major bleeding.

Conclusions

Pre-ICU anticoagulation did not substantially alter ICU survival in this early analysis, although mortality trends were lower in anticoagulated ischemic stroke patients. Minor increases in bleeding risk were observed. While our findings are preliminary, they suggest that prior anticoagulation may offer some protective effect, definitive conclusions require further validation with a fully powered cohort and advanced predictive modeling to clarify clinical benefits.

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