**Poster Number: 36**

# MetroHealth Medical Center

## RESEARCH DAY 2023

### Abstract Submission Form

**Poster Title:** **The Clinical Impact of Anticoagulants and Platelet Aggregation Inhibitors on Traumatic Intracranial Hemorrhage**

**Authors:** **Ravi Dhamija, Varunil N. Shah, Michael L Kelly MD, David Kaelber MD, PhD, MPH, Deven Reddy MD**

**Presenter's Name:** **Ravi Dhamija**

**Location of Laboratory:** **TriNetX database, access through MetroHealth**

**Category:** **Clinical Research**

**Introduction:** Traumatic intracranial hemorrhage (ICH) is a potentially severe neurological event that carriers the risk of substantial morbidity and mortality. This study aimed to assess the outcomes of patients who experienced traumatic ICH and were prescribed anticoagulants (ACs) or platelet aggregation inhibitors (PAIs) in the 30 days and 1 day leading up to the hemorrhage, comparing them to individuals not on neither (No Meds). The primary outcome was mortality at 30 days and 1 year post ICH. Three primary comparisons were made: ACs vs. PAIs, ACs vs. No Meds, and PAIs vs. No Meds.
**Methods:** A comprehensive analysis was conducted using data sourced from the TriNetX database. The study encompassed 26,448 patients with traumatic ICH on ACs, 16,529 on PAIs, and 351,368 on neither. After propensity matching, mortality rates at 30 days and 1 year were calculated for each group, and odds ratios (OR) along with their respective 95% confidence intervals (95% CI) were computed.
**Results:** After implementing propensity score matching, our results revealed critical insights into the outcomes of patients with traumatic ICH based on their medication profiles.
**ACs vs. PAIs:** Patients on ACs had a notably higher 30-day mortality rate (11.8%) compared to those on PAIs (7.59%), indicating a substantial risk reduction for individuals on PAIs (OR: 0.607, 95% CI: 0.561–0.657, $p<0.0001$). A similar trend was observed at 1 year, with AC patients experiencing a higher mortality rate (20.234%) than those on PAIs (14.595%) (OR: 0.674, 95% CI: 0.634-0.716, $p<0.0001$).
**ACs vs. No Meds:** Patients on ACs exhibited a significantly increased 30-day mortality (10.657%) compared to those not on PAIs and ACs (7.714%) (OR: 1.427, 95% CI:1.334–1.515, $p<0.0001$). This difference persisted at 1 year, with AC patients having a higher mortality rate (17.969%) compared to those on No Meds (13.476%) (OR: 1.406, 95% CI: 1.341–1.475, $p<0.0001$).
**PAIs vs. No Meds:** Patients on PAIs showed a slightly lower risk of mortality at 30-days compared to individuals on No Meds, with rates of 7.797% and 8.971%, respectively (OR: 0.858, 95% CI: 0.794–0.928, $p<0.0001$). At the 1-year mark, patients on PAIs did not have a significantly decreased mortality rate compared to those on No Meds (15.084% vs. 14.944%) (OR: 1.011, 95% CI: 0.952–1.074, $p = 0.7220$).
**Conclusion:** Patients on anticoagulants exhibited significantly higher mortality rates compared to those on platelet aggregation inhibitors, and to individuals not on PAIs and ACs. Notably, patients on platelet aggregation inhibitors did not display substantial differences in mortality rates compared to individuals not taking any medications. Further research in determining the risk of traumatic intracranial hemorrhage in patients on anticoagulant medication is warranted.