Results Seventeen studies (n=527) that met the inclusion criteria were included for systematic review. Patients underwent EVT with stent-retriever (60.4%), direct aspiration (29.6%) or both (9.9%). Mean age was 69.1 years (SD=2.69), median National Institute Health stroke scale (NIHSS) was 12.46. Forty seven percent received intravenous tissue Plasminogen Activator (t-PA) and 10.68% received intraarterial t-PA.

The pooled estimate of functional independence and excellent functional outcome at 90 days was achieved in 43.2% (95% IC:18.4–69.7, I2:80.7%) and 41.3% (95%IC: 27.3–56.0, I2: 75.8%) patients, respectively. Mortality at 90 days was 6.1% (95%IC:0.2–16.2, I2:64.2%). Symptomatic intracranial hemorrhage (sICH) was present in 0.9% (95%IC: 0.0–1.1, I2:0%), and all ICH was present in 5.4% (95%IC:0.1–15.1, I2: 60.1%).

Conclusion Our systematic review demonstrates decent rates of functional independence and excellent functional outcome after EVT for isolated primary dMEVO ischemic stroke in the early time window. Mortality and sICH rates were similar to EVT for proximal locations. The study is limited by high heterogeneity and unavailability of comparable medically managed patients with dMEVOs. The EVT should be directly compared with best medical treatment for dMEVOs in a large prospective randomized trial.


Background Studies over the past decade have demonstrated that clopidogrel hyper-response (P2Y12 Platelet Reaction Unit, PRU <10) in cerebral aneurysm flow diverter (FD) cases is associated with potentially deadly hemorrhagic complications. Ticagrelor has become the preferred agent in recent years at many institutions due to its high potency (lower PRUs) and lack of resistance as compared to clopidogrel. We report here the first known series of FD cases with ticagrelor hyper-response.

Methods We retrospectively reviewed a prospectively-maintained IRB-approved institutional database of the senior authors to identify consecutive cases where patients undergoing cerebral FD treatment on dual antiplatelet therapy with ticagrelor and aspirin had a documented preprocedural PRU of < 40 (hyper-response). Case details were recorded including patient demographics, aneurysm type, device used, and periprocedural events and complications.

Results Over the 12-month study period (January 2021 to 2022), 23 cases of hyper-response were identified (PRU <40). Average patient age was 16 +/- 16 years old (range 22–81 years). Average PRU of all cases was 13 +/- 11 (range 0–40).

Of all cases with pre-operative PRU <40, 2 cases (9%) had a PRU 30–40, 4 cases (17%) had a PRU 20–29, 3 cases (13%) had a PRU 10–19, while the remainder 14 cases (61%) had a PRU <10. 83% (n=19) were located in the anterior circulation, 4 (17%) in the posterior circulation. Aneurysms treated included 11 (48%) internal carotid artery, 3 (13%) middle cerebral artery, 5 (22%) anterior cerebral artery, 1 (4%) vertebral artery, 3 (13%) basilar artery aneurysms. No major strokes were observed in the first 30 days after each case, and all patients were discharged at their mRS baseline.

Conclusion Ticagrelor hyper-response (PRU < 40) during cerebral aneurysm FD procedures is not associated with the high rates of symptomatic hemorrhage as previously reported with clopidogrel. This further supports the utilization of ticagrelor and raises doubts as to the need for routine P2Y12 testing with its use.


Background and Purpose With the drastically aging population in the U.S., non-traumatic subacute and chronic subdural hematomas (sacSDH) are projected to represent the most common neurosurgical diagnosis requiring treatment within the next two decades. The Premier Healthcare Database (PHD) is an all-payer database comprising about 20% of U.S. inpatient discharges from over 800 U.S. hospitals since 2012.

Objective To portray current mortality rates, complication rates, and length of stay with inpatient sacSDH care.

Methods The PHD (Premier Inc., Charlotte, NC) was queried for encounters between 10/2016 and 12/2020 with the ICD-10 diagnoses I62.00, I62.01, I62.02 to cover non-traumatic as well as non-acute subdural hematoma as the principal diagnosis among patients age ≥ 40 years. Medical and surgical treatment was compared. In-hospital mortality is defined as an inpatient who is not discharged. Complications represent medical conditions not present on admission that affect mortality, length of stay, and costs within the database. Length of stay represents time spent as an inpatient. Distributions were estimated by yearly strata and compared using Student’s t-tests.

Results The query identified up to 14,136 inpatient encounters. Between 10/2016 and 12/2020, in-hospital mortality rates averaged 10.9% in the medical group (MG) and 3.6% in the surgical group (SG) (p<0.001). Complication rates averaged...