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LB-005 THE INSIGHT REGISTRY: A MULTI-CENTER, MULTI-OMIC STROKE CLOT STUDY, PRELIMINARY RESULTS

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Introduction Understanding clot composition and associated genomic, epigenomic, and proteomic signatures could provide insight into thrombus biology and etiology, and aid in prognosis in stroke. We report preliminary results in the first 50 subjects enrolled in this multi-omic clot collection registry. Our objective was to report our initial results from the INSIGHT Registry, a multicentered ‘multi-omic’ analysis of thrombi associated with acute hemorrhagic and ischemic stroke.

Abstracts LB-005 Table 1 Demographics and clinical characteristics

	Ischemic Stroke (N=46)	Hemorrhagic Stroke (N=4)
Age (yrs)	67.5 (37, 92); n=46	63 (56, 70); n=4
Sex		
Male	43.5% (20/46)	50% (2/4)
Female	56.5% (26/46)	50% (2/4)
Race		
Asian	0.0% (0/46)	25% (1/4)
Black/African American	13% (6/46)	0.0% (0/4)
White	73.9% (34/46)	0.0% (0/4)
Multiracial	2.2% (1/46)	0.0% (0/4)
Other	10.9% (5/46)	75% (3/4)
Comorbidities		
History of Atrial Fibrillation	10.9% (5/46)	0.0% (0/4)
Diabetes	23.9% (11/46)	25% (1/4)
Hypertension	73.9% (34/46)	50% (2/4)
Hyperlipidemia	43.5% (20/46)	50% (2/4)
NIHSS on Admission		
Minor stroke (1–4)	15.2% (7/46)	25% (1/4)
Moderate stroke (5–15)	41.3% (19/46)	50% (2/4)
Moderate/Severe (16–20)	13% (6/46)	0.0% (0/4)
Severe stroke (≥ 21)	30.4% (14/46)	0.0% (0/4)
Missing	0.0% (0/4)	25% (1/4)
NIHSS at Discharge		
Recovered (0)	17.4% (8/46)	0.0% (0/4)
Minor stroke (1–4)	28.3% (13/46)	0.0% (0/4)
Moderate stroke (5–15)	19.6% (9/46)	75% (3/4)
Moderate/Severe (16–20)	8.7% (4/46)	0.0% (0/4)
Severe stroke (≥ 21)	4.3% (2/46)	25% (1/4)
Missing	21.7% (10/46)	0.0% (0/4)
TICI Score		
TICI 0-2A	4.3% (2/46)	NA
TICI 2B	15.2% (7/46)	NA
TICI 2C	10.9% (5/46)	NA
TICI 3	69.6% (32/46)	NA
LKW to Recanalization (Minutes)	310 (119, 7230); n=42	NA

Material and Methods Subjects age ≥18 years, treated frontline with the Penumbra System for thrombectomy or the Artemis Neuro Evacuation device for minimally invasive endoscopic intracerebral hematoma evacuation as standard of care are included. Patient demographics, medical history, radiographic, and procedural information are collected in conjunction with extracted clot and concurrent extracranial arterial blood. Upon collection, clots were placed in RNAlater for preservation of protein and RNA and peripheral blood in K2EDTA tubes, allowing sample shipment at ambient temperature. RNA isolated from clot and blood were quality controlled by TapeStation and quantified by QuBit. Protein is quantified by bicinchoninic acid (BCA) assay. Genomic DNA isolated from peripheral blood is sequenced using the Illumina Infinium Global Screening Array. Follow-up clinical assessments occur at discharge and/or day 7, and at 90 days post-procedure.

Results 50 subjects were enrolled from 8 active sites between 02/2021 and 06/2021 (table 1). As expected, most enrollments were in ischemic stroke thrombectomy (46) versus intracranial hemorrhage (4), reflecting the relative incidence and utilization of those procedures. The initial dataset provided reflects real-world results consistent with published thrombectomy studies. RNA isolated from clots had an average RNA integrity score (RIN) of 4 (±1) ranging from 2–8, while RNA isolated from systemic arterial blood averaged 5 (±2) with a range from 2–9 with 1 sample fail (n=48). Total protein isolated from clots averaged 3028ug (±5407) ranging from 32–23,451ug (n=24), while total protein isolated from blood averaged 2026ug (±1265) ranging from 241–5334 (n=48).

Conclusion These preliminary results demonstrate the real-world applicability of the INSIGHT study to typical stroke thrombectomy population. Furthermore, the tissue processing protocols are providing high-quality RNA and protein for analysis, which is currently underway.

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LB-006 COLLATERAL IMAGING OF STROKE PATIENTS IN THE LATE WINDOW PRIOR TO ENDOVASCULAR THROMBECTOMY RESULTS FROM A POOLED INDIVIDUAL PATIENT-LEVEL MULTICENTER ANALYSIS

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Background Collateral assessment using CT angiography (CTA) is promising to increase the eligibility for endovascular thrombectomy (EVT) in the late window (6–24 hours). The outcome of these patients compared to those selected using perfusion imaging is not clear. We aimed to describe the

outcomes of EVT in patients selected using collateral vs perfusion imaging in the late time window.

Methods We pooled individual patient-level data from seven trials and registries of EVT-treated patients in the late-time window. These studies were conducted in North America, Europe, and Korea. We collected clinical, imaging, and outcome data. We classified patients according to whether selection for EVT was done using collateral imaging alone (collateral cohort) vs perfusion plus collateral imaging (perfusion cohort). The primary outcome was the proportion of patients achieving independent 90-day functional outcome (modified Rankin scale 'mRS' 0–2). We also collected data on successful reperfusion (thrombolysis in cerebral infarction 2b-3), and symptomatic intracranial hemorrhage. We used the propensity score-weighting method to balance important predictors between the perfusion vs collateral cohorts.

Results In 608 patients from seven studies, the mean (SD) age was 67.4 (14.6) years, and 50.5% were females. The median onset/last known well to emergency arrival time was 8.8 hours and 53.2% had wake-up strokes. Both cohorts had collateral imaging and 379 patients (62.3%) also had perfusion imaging. Independent functional outcome was achieved in 43.1% overall. In the perfusion cohort, 168/379 patients (45.5%) achieved functional independence vs 94/214 (43.9%) in the collateral cohort ($P=0.71$). A logistic regression model adjusting for inverse-probability-weighting showed no difference in 90-day mRS score of 0–2 (adjusted OR 1.05, 95%CI 0.69 to 1.59, $P=0.83$) or in a favorable shift in 90-day mRS (common adjusted OR 1.01, 95%CI 0.69 to 1.47, $P=0.97$) among patients in the perfusion vs collateral cohorts.

Abstract LB-006 Figure 1

Conclusion In this pooled individual patient-level analysis from multi-national studies and registries, late window patients who were selected for EVT using collateral imaging achieved comparable functional outcomes to patients who had perfusion imaging.

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LB-007 PIPELINE EMBOLIZATION DEVICES FOR THE TREATMENT OF INTRACRANIAL ANEURYSMS (PEDESTRIAN), SINGLE CENTRE REGISTRY: LONG-TERM ANGIOGRAPHIC AND CLINICAL OUTCOMES FROM 1,000 ANEURYSMS WITH PED SHIELD SUBANALYSIS

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Background Prospective studies have established the safety and efficacy of the Pipeline™ Embolization Device (PED) for treatment of intracranial aneurysms (IA).

Objective To investigate long-term outcomes from the Pipeline Embolization Devices for the Treatment of Intracranial Aneurysms (PEDESTRIAN) Registry.

Methods The PEDESTRIAN registry data was retrospectively reviewed, which included patients (March 2006-July 2019) with complex IAs treated with PED. Patients with unfavorable anatomy and/or recurrence following previous treatment were included and excluded those with acute subarachnoid hemorrhage. The primary angiographic endpoint was complete occlusion and long-term stability. Clinical and radiological follow-up was performed at 3–6 months, 12 months, and yearly thereafter.

Results A total of 835 patients (mean age 55.9 ± 14.7 years; 80.0% female) with 1,000 aneurysms were included. Aneurysms varied in size: 64.6% were small (≤ 10 mm), 25.6% were large (11–24 mm), and 9.8% were giant (≥ 25 mm). A total of 1,214 PEDs were deployed. Follow-up angiography was available for 85.1% of patients with 776 aneurysms at 24.6 ± 25.0 months (mean). Complete occlusion was demonstrated in 75.8% of aneurysms at 12-months, 92.9% at 2–4 years, and 96.4% at >5 years. During the post-procedural period, mRS remained stable or improved in 96.2% of patients, with stability or improvement in 99.1% of patients >5 years. The overall major morbidity and neurological mortality rate was 5.8%.

Conclusion This study demonstrated high rates of long-term complete aneurysm occlusion, stable or improved functional outcomes, and low rates of complications and mortality. Clinical and angiographic outcomes improved over long-term follow-up, demonstrating endovascular treatment of IA with PED is safe and effective.

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LB-008 THE CONTOUR DEVICE, A NOVEL INTRASACULAR FLOW DISRUPTER FOR THE TREATMENT OF INTRACRANIAL ANEURYSMS: EARLY EXPERIENCE AND MID-TERM FOLLOW-UP

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Introduction The Contour device is a new intrasaccular flow disrupter designed to treat bifurcation and wide-neck bifurcation intracranial aneurysms. This device provides a stable scaffold framework across the aneurysm neck. The Contour is re-sheathable and re-deployable and the detachment method is electrolytic. We report our center's experience and mid-term