model for post-traumatic vasospasm in sTBI patients by combining clinical data and serum inflammatory and neuronal proteins for improved prognostication.

Methods Fifty-three adult civilian patients were prospectively enrolled in the sTBI arm of the Surgical Critical Care Initiative (SC2i). SC2i is a consortium of research institutions working to implement biology-driven critical care to deliver precision medicine to individual patients. Patient clinical and serum inflammatory and neuronal protein data were combined and evaluated using the machine learning methods of LASSO and CART to construct parsimonious models for predicting development of post-traumatic vasospasm. The results underwent 100-fold cross validation to assess their robustness.

Results Thirty-six (67.9%) patients developed vasospasm and 10 (18.9%) died. The mean age was 39.2; 22.6% were women. There were an equal number of white (25) and black (25) patients and three from other races. For vasospasm prediction, CART identified lower IL9, lower presentation pulse rate and higher eotaxin as predictors (AUC = 0.89, cross validated AUC = 0.47). LASSO improved upon the CART high risk model by identifying higher Rotterdam CT score ($p=0.02$) and lower age ($p=0.01$) as risk factors for vasospasm development (full data AUC 0.94, sensitivity 0.86, specificity 0.94; cross-validation AUC 0.87, sensitivity 0.79 and specificity 0.93).

Conclusion Inflammatory and glial-specific protein levels following sTBI may have predictive value that exceeds conventional clinical variables for certain outcomes. Eotaxin, IL9, and pulse rate predict development of post-traumatic vasospasm. These results warrant validation in a prospective cohort.

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E-131 THE ASSOCIATION BETWEEN MOYAMOYA DISEASE AND COEXISTING AUTOIMMUNE CONDITIONS: OVERVIEW OF CLINICAL AND EPIDEMIOLOGICAL CHARACTERISTICS

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Introduction Moyamoya disease was first described in the 1950's. While six decades have passed, the underlying etiology of Moyamoya remains unknown. It has been postulated that underlying inflammatory or autoimmune (AI) processes may play a role in the development of this condition.

Objectives This systematic review aims to characterize the clinical and epidemiological attributes of concurrent moyamoya disease and AI conditions among the population.

Methods A systematic review was performed including studies reporting patient level data of Moyamoya disease and concomitant autoimmune disease. Relevant studies were identified using Preferred reporting Items for Systematic Reviews and Meta-Analysis criteria.

Results There were 739 results of which 149 were included in this study. The first reports of concurrent Moyamoya and autoimmune disease were in 1991 of 2 cases with associated Graves' disease. They were treated with antithyroid medication alone and showed improvement. There was a total of 257 patients (192 females, 48 males, 17 unspecified). A total of 158 cases were reported as 'Moyamoya Disease' and 99 were reported as 'Moyamoya Syndrome/Vasculopathy.' Most cases were ischemic (175 ischemic, 15 hemorrhagic) in nature. Bilaterality of the disease was reported in 130 cases, unilaterality in 34 cases. The most commonly reported ethnicities were Chinese (26 cases), Japanese (17 cases), and Korean (17 cases). The most common AI conditions were Graves' disease (150 cases, 58.4%), Lupus (26 cases, 10.1%), antiphospholipid syndrome (19 cases, 7.4%), Type 1 Diabetes (19 cases, 7.4%), and Multiple Sclerosis (7 cases, 2.7%).

Conclusions Numerous publications have reported Moyamoya with coexisting autoimmune conditions. The demographic characteristics align with the common autoimmune (female predominance) and Moyamoya (high east Asian prevalence) attributes. These results warrant further investigation into possible causal or synergistic mechanisms.

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E-132 SUCCESSFUL MECHANICAL THROMBECTOMY IN AN 11-YEAR-OLD PATIENT WITH EMERGENT LARGE VESSEL OCCLUSION ACUTE ISCHEMIC STROKE RELATED TO CONGENITAL COMPLETE HEART BLOCK AND RECENT COVID-19 INFECTION

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Objective Case report of a pediatric acute ischemic stroke with left M1 middle cerebral artery occlusion with large penumbra who underwent mechanical thrombectomy with TICI 3 reperfusion.

Case An 11-year-old pediatric male patient with a history of congenital complete heart block presented to our hospital 30 minutes after the sudden onset of right sided weakness and aphasia. The patient was diagnosed with COVID-19 infection about 2 weeks before the stroke after presenting with upper respiratory tract infection symptoms, fatigue, cough, and muscle aches. On neurological examination, the patient was alert with expressive aphasia, left-sided partial gaze preference, right-sided upper motor neuron type facial weakness, right sided motor weakness in upper and lower extremity 2/5. The initial National Institute of Health Stroke Scale (NIHSS) score was 16. The computed tomography (CT) of the head revealed left middle cerebral artery (MCA) territory ischemia in the basal ganglia region (Alberta Stroke Program Early CT Score - 9) with no acute intracranial hemorrhage or mass effect. CT angiography demonstrated an occlusion of left M1 segment of the MCA. CT Perfusion imaging was suggestive of a large ischemic penumbra. Neuroendovascular service was consulted and candidacy for interventional treatment was confirmed.

Procedure The patient underwent endovascular thrombectomy under general anesthesia. The patient was placed on the angiographic table and the right femoral access was obtained using a micropuncture kit with a 19-gauge Seldinger needle. A short 6 French sheath (Terumo) was placed. The short sheath was exchanged for a 90 cm Neuronmax long sheath and advanced over a 5 French catheter (Penumbra Select) over a