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School-age Morphological And Neurodevelopmental Outcomes In Patients With Sagittal Craniosynos

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OBJECTIVES/GOALS: Several studies compare perioperative parameters and postoperative morphology of open cranial vault remodeling (CVR) and endoscopic-assisted craniectomy (EAC) in the treatment of sagittal craniosynostosis. However, data on neurodevelopmental outcomes comparing these techniques is lacking. METHODS/STUDY POPULATION: Patients with repaired sagittal synostosis were enrolled from a single tertiary care center between five and fifteen years of age. Patients with any craniofacial syndrome (e.g., 22q11.2 deletion) or other medical conditions that could affect neurodevelopment were excluded. Neurodevelopment was measured using the Differential Ability Scale-II (DAS-II). The General Cognitive Ability (GCA) score was the primary outcome measure, describing overall intellectual ability. Secondary outcome measures were measurements of cephalic index (CI) from pre- and postoperative imaging studies. Family socioeconomic status (SES) was estimated using the Hollingshead index (total score, continuous). RESULTS/ANTICIPATED RESULTS: 26 patients [10 CVR (2 Female:8 Male), 16 EAC (6 F:10 M)] were studied. Mean age at repair was greater with CVR than EAC (15.5 Â± 8.5 months vs 3.5 Â± 1.3 months, respectively, $p < 0.001$). Mean age at DAS-II testing was 9.0 Â± 2.2 years. Patients GCA scores were within the average range relative to test norms (CVR 95.7 Â± 15.4 vs EAC 102.6 Â± 17.4). After adjusting for SES and preoperative CI, group differences in GCA were modest and statistically nonsignificant ($p = 0.646$). GCA scores were associated with SES ($p = 0.054$) but not preop CI ($p = 0.479$). Differences between CVR and EAC were not statistically significant for any of the imaging parameters (pre and postop CI, pre to postop change in CI, or age at postop imaging; $0.131 <= p <= 0.867$). None of the independent variables were significantly associated with postop CI ($0.140 <= p <= 0.689$). DISCUSSION/SIGNIFICANCE: Interim analysis of the preliminary data suggests no association between surgical procedure and cognitive and morphological outcomes at school-age in patients with sagittal craniosynostosis who underwent CVR versus EAC. Collection of data continues, with the goal to enroll 50 participants in each group by 2022.

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Identification of Symptom-Based Phenotypes in PASC Patients through Bipartite Network Analysis: Implications for Patient Triage and Precision Treatment Strategies

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OBJECTIVES/GOALS: Approximately 10% of COVID-19 patients experience multiple symptoms weeks and months after the acute phase of infection. Our goal was to use advanced machine learning methods to identify PASC phenotypes based on their symptom profiles, and their association with critical adverse outcomes, with the goal of designing future targeted interventions. METHODS/STUDY POPULATION: Data. All COVID-19 outpatients from 12 University of Minnesota hospitals and 60 clinics. Independent variables consisted of 20 CDC-defined PASC symptoms extracted from clinical notes using NLP. Covariates included demographics, and outcomes included New Psychological Diagnostic Evaluation, and Number of PASC Hospital Visits (>=5). Cases (n=3235) consisted of patients with at least one symptom, and controls (n=3034) consisted of patients with no symptoms. Method. (1) Used bipartite network analysis and modularity maximization to identify patient-symptom biclusters. (2) Used multivariable logistic regression (adjusted for demographics and corrected through Bonferroni) to measure the odds ratio of each patient bicluster to adverse outcomes, compared to controls, and to each of the other biclusters. RESULTS/ANTICIPATED RESULTS: The analysis identified 6 PASC phenotypes (http://www.skbhavnani.com/DIVA/Images/Fig-1-PASC-Network.jpg), which was statistically significant compared to 1000 random permutations of the data (PASC=.31, Random Median=.27, z=11, P<.01). Three of the clusters (Cluster-1, Cluster-4, and Cluster-5 encircled with ovals in Fig. 1) contained CNS-related symptoms, which had statistically significant risk for one or both of the adverse outcomes. For example, Cluster-1 with critical CNS symptoms (depression, insomnia, anxiety, brain-fog/difficulty-thinking), had a significantly higher OR compared to the controls for New Psychological Diagnostic Evaluation (OR=6.6, CI=4.9-9.1, P-corr<.001), in addition to having a significantly higher ORs for the same outcome compared to all the other clusters. DISCUSSION/SIGNIFICANCE: The results identified distinct PASC phenotypes based on symptom profiles, with three of them related to CNS symptoms, each of which had significantly higher risk for specific adverse outcomes compared to controls. We will test whether these phenotypes replicate in the N3C data, and explore their translation into triage and treatment strategies.

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Communication about Genetic Testing to Adult Women with a Higher Risk of Cancer in the United States: A Cross-sectional Analysis of the Health Information National Trends Survey (2017-2020)

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OBJECTIVES/GOALS: The aim of this study is to examine the prevalence of communication sources about genetic testing among adult women with a higher risk of cancer in the U.S. and identify factors associated with these communication sources by analyzing the Health Information National Trends Survey (HINTS; 2017-2020) data, a large, nationally representative sample. METHODS/STUDY POPULATION: HINTS aims to gain knowledge about the use of and access to cancer information by the public. Used data was collected between 2017 and 2020 from a sample of adult participants who self-reported as female, aged 18+, having no personal cancer diagnosis, and having a family history of cancer. The primary outcome measure is source of communication about genetic testing. Some categories are the media, family members, or a healthcare professional. Analytical approaches include the Pearsons Chi-squared test and poisson regression model to estimate prevalence ratios

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