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Neurologic Deterioration in Children with Non-Severe Traumatic Intracranial Hemorrhage: A Multicenter Cross-Sectional Study

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OBJECTIVES/GOALS: Children with traumatic intracranial hemorrhage are monitored closely for deterioration and need for intervention. Data on risk factors for deterioration in nonsevere head injury are limited. Our objective was to identify children with hemorrhage from non-severe head injury who are at risk for deterioration. METHODS/STUDY POPULATION: We conducted a 10-site cross-sectional study of children 8. Our primary outcome was clinically important hemorrhage after injury and within 96 hours of ED arrival, defined as ED interventions (intubation, hyperosmotic agents, or neurosurgery within 4 hours of arrival) or clinically important deterioration (new or worsening signs/symptoms with an acute change in management). After testing model assumptions, we used logistic regression to identify clinical and neuroradiographic factors associated with clinically important hemorrhage. RESULTS/ANTICIPATED RESULTS: We studied 763 children with intracranial hemorrhage, with a median (IQR) age of 3.0 (0.4, 10.5) years. Initial GCS was mild (14-15) in 89.4% (n=682) and moderate (9-13) in 10.6% (n=81). Clinically important hemorrhage was observed in 19.5% (n=149), and 7.8% (n=59) developed clinically important deterioration. Median (IQR) time to deterioration was 17.6 (4.6, 37.9) hours. In our sample, 16.3% (n=124) underwent critical interventions, 54.9% (n=419) were admitted to an ICU, and 50.1% (n=382) underwent repeat neuroimaging. We found older age (OR 1.6; 95% CI 1.3, 1.9), lower GCS (OR 5.0; 95% CI 2.9, 8.5), and epidural hemorrhage (OR 3.3; 95% CI 2.0, 5.5) was associated with clinically important hemorrhage. DISCUSSION/SIGNIFICANCE: Clinically important hemorrhage occurred in one in five children with non-severe head injury. Clinical and neuroradiographic factors associated with ED interventions and deterioration were identified. Risk stratification algorithms using these data will be developed to assist clinicians caring for children with head injury.

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Randomized Placebo-controlled Trial to Test the Efficacy of genetically informed biomarker Nicotine Metabolite Ratio (NMR), and transdermal nicotine replacement therapy (NRT) versus varenicline

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OBJECTIVES/GOALS: The overall aim of the proposed study is to evaluate the effectiveness and clinical utility of the NMR as a biomarker of response to placebo, transdermal nicotine, and varenicline to be utilized within the clinical practice as a point-of-care predictor to tailor an individual's smoking cessation treatment. METHODS/STUDY POPULATION: A 12-week phase II, stratified multicenter, randomized, placebo-controlled trial of 3 treatment groups to measure treatment-seeking smokers (n-900:150 slow metabolizers; 150 normal metabolizers), randomized to 12-weeks of nicotine patch (active patch + placebo pill), varenicline (active pill + placebo patch), or placebo (placebo pill + patch). At the end of treatment, patients will be followed for 12 months. Study Population: Adult smokers 18–65 years old reported smoking≥10 cigarettes/day for≥6 months (verified by carbon monoxide (CO) >10 ppm). Drug and route of administration: RESULTS/ANTICIPATED RESULTS: The study would conclude the effectiveness of the interventions well defined. DISCUSSION/SIGNIFICANCE: The report will provide robust evidence to support the effectiveness of NRT intervention on smoking cessation.

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Regulation of renal function by the peroxisome proliferator-activated receptor-alpha: A novel target for treating hypertension

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OBJECTIVES/GOALS: Approximately 37 million people in the U.S. have chronic kidney disease, which is a major risk factor for cardiovascular and end stage renal diseases. PPAR-Î±knockout (KO) mice exhibit increased renal inflammation and blood pressure. In this study, we investigated the role of PPAR-Î±in renal function in a mouse model of hypertension. METHODS/STUDY POPULATION: Male 4-month-old wild type (WT) and PPAR-Î±KO mice were instrumented with radio transmitters by artery canulation (Data Science Intl). This method minimizes stress and artifacts by avoiding the use of tethering, restraining, or anesthetizing the mice during data sampling. After recovery from surgery, we continuously measured mean arterial pressure (MAP) via radio telemetry in conscious ambulatory mice. After baseline MAP was established, vehicle (Veh; saline) or angiotensin II (Ang II) were infused using an osmotic minipump at a slow pressor dose (400 ng/kg/min) for 12 days. On day 12, we injected an intravenous bolus of fluorescin-sinistrin (3.74Âµl/g body weight) and collected 8 blood samples (20Âµl/sample) over 75 minutes to enable calculation of the glomerular filtration rate (GFR) using [GFR = I/(A/Î±+ B/ÃŸ)]. RESULTS/ANTICIPATED RESULTS: Similar to our prior observations, no significant (ns) differences in baseline MAP were observed between WT and PPAR-Î±KO mice [(mmHg): WT (n=6), 111 ± 20 vs. PPAR-Î±KO (n=6), 113 ± 10; ns] whereas after 12 days of the slow pressor effect of Ang II, MAP was increased in both strains [(mmHg): WT (n=8), 138 ± 11# vs. PPAR-Î±KO (n=8) , 156 ± 16#; #p DISCUSSION/SIGNIFICANCE: PPAR-Î±protects mice from worsening hypertension and is critical to preserving GFR during normotensive conditions. Ongoing studies are further investigating how PPAR-Î±regulates renal function. These finding suggest therapeutics designed to increase PPAR-Î±activity could have clinical benefit in chronic kidney disease.

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The kinesin-like protein Kif11 is essential for the survival of TP53 mutant triple-negative breast cancer cells

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OBJECTIVES/GOALS: While mutant TP53 is an attractive therapeutic target in TNBC, attempts to target the mutant p53 protein directly have failed. Thus, we aim to identify pathways critical for

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