

CARDIOVASCULAR AND METABOLIC RISK IN ADULTS WITH FETAL ALCOHOL SPECTRUM DISORDER AND ITS LINK TO NEUROBEHAVIOURAL FUNCTION

Presenting Authors: JULIE A. KABLE

Presenter email jkabl01@emory.edu

Introduction / Issues: The impact of prenatal alcohol exposure (PAE) has been investigated for over four decades, but little is known about its influence on health status and neurobehavioral functioning in adulthood. Previous findings suggests that vascular development may be disrupted, leading to increased vulnerability to cardiovascular disease and poor oxygen perfusion in the brain, contributing to neurobehavioral impairments seen in individuals with fetal alcohol spectrum disorder

Method / Approach: Participant's mothers were recruited at the time of the pregnancy based on maternal alcohol consumption: (1) Alcohol-Exposed, who were exposed to moderate to heavy amounts of prenatal alcohol or (2) Controls, who had similar socio-economic characteristics with no PAE. Measures of metabolic and cardiovascular risk, including blood pressure, cholesterol (high and low density lipoproteins, and triglycerides), insulin, fasting glucose, and HbA1c levels, body mass index, and physical activity were collected when participants were in their thirties. Peripheral microvascular function was assessed by reactive hyperemic blood flow response to cuff occlusion using digital peripheral arterial tonometry. Hemodynamic changes in the prefrontal cortex (PFC) were also assessed using functional near-infrared spectroscopy during tasks that elicit inhibitory control. Relationships between peripheral microvascular function, oxygenation in the PFC and neurobehavioral function were evaluated.

Results: Preliminary analysis indicated a link between metabolic, cardiovascular and peripheral endothelial dysfunction. Indices of peripheral vascular function were predictive of neurocognitive status. Patterns of increased deoxygenated hemoglobin were also found during a blocked reward task.

Discussion and Conclusions: Prenatal alcohol exposure was associated with impaired vascular functioning, which predicted an individual's neurodevelopmental compromise.

Implications for Practice or Policy: Individuals with a history of prenatal alcohol exposure, particularly those with significant levels of alcohol-related dysmorphia, should be closely monitored for signs of cardiometabolic disease.

Discussion Section: The desired outcome is for participants to have an understanding of FASD as a whole-body condition. In light of the findings presented, the discussion section will be focused on considering what changes in clinical practice should take place now and into the future.

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