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sleep than awake (non-ictal) periods, and was this characteristic was used as an informative feature to cluster these two events.

2-C-195: Neurovascular study of the human umbilical cord from newborns exposed to cocaine during pregnancy

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Substance abuse during pregnancy is a critical public health concern associated with harmful maternal, fetal consequences and developmental disorders. Cocaine is one of the most common drugs involved in prenatal exposure, it is a sympathomimetic drug that induces vasoconstriction. We recently confirmed the presence of sympathetic fibers around blood vessels of human umbilical cords (UCs) from healthy newborns. It is unknown whether UCs innervation could be altered in pregnancies of cocaine users, and thus compromise maternal-filial blood flow. We evaluated the UCs innervation from newborns prenatally exposed to cocaine and compared it with healthy newborns. Immunohistochemical assays with anti-PGP9.5 and anti-TH identified a subpopulation of newborns from cocaine pregnant users with increased IR-PGP and -TH area surrounding the umbilical arteries. Reduced UCs arterial diameter was also found. Together, our results support the idea that direct vasoconstrictor effects on the umbilical vessels could take part in different conditions such as intrauterine-growth restriction, prematurity, low-birth-weight and subsequent developmental alterations. Ongoing investigations seek correlations between cocaine-induced increase in periarterial innervation and the clinical manifestations in newborns of cocaine users. Risk factors such as poly-consumption, gestational age and nutritional status are being evaluated. The establishment of associations between neurobiological and clinical variables will help us to understand the relationship between developmental disorders and prenatal drug use.

2-C-196: Investigating regional lipid expression profiles in post-mortem Alzheimer's disease brain tissue using MALDI-IMS

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Alzheimer's disease (AD) is a debilitating and progressive neurodegenerative condition that accounts for the vast majority of dementia diagnoses annually. Several brain regions have been implicated in the neuropathology of AD although the mechanisms of AD progression are poorly understood. The majority of pathological studies have focused on proteins, whereas perturbations in lipid expression within the AD brain are relatively under described. Lipids are the primary structural component of cell membranes, key players in neuroprotective and apoptotic pathways; and can even stimulate or inhibit transmembrane protein pumps. Profiling lipid expression may prove critical to understanding the complex underlying neurodegenerative mechanisms that comprise AD. Previously, detection of lipids in AD brain tissue has been limited by a lack of analytical imaging techniques capable of detecting complex lipid species and a need for fresh flash frozen tissue for mass spectrometry analysis. In this study we utilize a protocol developed in our lab to profile lipid

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