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Effect of prenatal exposure to alcohol on the development of brain vessels in human embryos and fetuses

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Introduction Human embryos are most susceptible to exogenous effects during the first weeks of development.
Aim Study the effects of prenatal alcohol intoxication on morphometric measures of developing vessels in the human embryonic and fetal cerebrum.
Methods Embryos and fetuses (7–12 weeks): 23 obtained from alcoholic women with stage II alcoholism (the experimental group) and 30 from healthy women (the control group). The research involved electron microscopy, computer morphometry, parametric method of variational statistics and Scion software to determine mean vascular cross-sectional area, the relative cross-sectional area of vessels, the number of vessels per unit area, and the perimeter of vessels.
Results From 10 weeks, vessels in the human brain start to differentiate into arteries and veins. At 12 weeks, capillary basal membranes were already clearly visible. We established a series of characteristics distinguishing brain tissues in the experimental group vs. that in controls: mean vessel cross-sectional areas and vessel perimeters were significantly reduced by 11 weeks vs. controls. The tendency persisted at 12 weeks. Relative vessel cross-sectional area in the experimental group was greater than in controls.
Conclusions Maternal alcoholization during pregnancy significantly influences the development of the cerebral circulatory system, manifesting mainly in changes in the vascularization of the growing brain.
Disclosure of interest The authors have not supplied their declaration of competing interest.

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Effects of hazardous alcohol use on neurocognition in hiv positive individuals

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Introduction There is significant evidence that HIV is brain degenerative and long-term infection can impair cognitive functioning. In South Africa, alcohol remains the dominant substance of abuse and lifetime alcohol dependence has been found to impair memory, executive function and visuospatial capabilities. The individual liability of alcohol and HIV on neurocognitive function have been well demonstrated, however there is relatively little evidence of the potentially aggravating effects of this dual burden on neurocognitive outcomes.
Objectives The present study is ongoing and sought to identify the effects of hazardous alcohol use on neurocognitive functioning in the context of HIV infection.
Aims To describe the association between HIV and harmful alcohol use on neuropsychological test performance in a cohort of adults in the Western Cape of South africa.
Methods participants ($n = 50$) were tested using a battery of neuropsychological tests sensitive to the effects of HIV on the brain. Self-reported alcohol use was recorded using the alcohol use identification test (AUDIT). Results The sample consisted of 47 females and 3 males. All participants were HIV-positive and on antiretroviral therapy. A total of 23 (46%) participants reported no alcohol use and 27 (54%) reported drinking alcohol on the AUDIT.
Results revealed a significant difference between groups on the Stroop colour word test, with poorer performance evident among the alcohol users ($P = 0.008$).
Conclusion Alcohol use in the context of HIV infection contributes to poorer executive function. These preliminary data provide evidence for a synergistic relationship between HIV infection and alcohol use.
Disclosure of interest The authors have not supplied their declaration of competing interest.

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