

Illicit drug use during pregnancy, risk factors and consequences in childhood

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Ilicit drug (ID) use during pregnancy is an important global problem. Prevalence has been increasing during last decades, ranging from 6 to 44%. In the Neonatology Division of a Public Hospital in La Pampa, Argentina, mothers' and newborns' urine samples were tested for ID with predefined medical criteria, since 2009. The disadvantages of this method were its low sensitivity and that it only detects drugs used in the past 72 hours. By 2011, 47 mother-newborn dyads were tested. In 49% cases, an illegal drug was detected. The most common asociation was marihuana and cocaine. As described in the literature, this women were young (media 21 years), had a history of domestic violence (63%), had drug users as convivients (90%), and also used tobacco (84%) and alcohol (47%) during pregnancy. The consequences on childhood of ID intrauterine exposure are under discussion. Research is difficult specially due to polydrug use, but there are other barriers to consider. During childhood, problems related to neurological development have been described following intrauterine exposure to ID. A few studies found poor health controls and high rates of judicial intervention for mistreatment. Some results on ongoing research related to general health and legal situation of dyads with positive urine test detected since 2009, could highlight the practical importance of new follow up strategies.

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Cyanotic congenital heart disease - The role of nitrogen species in adaptation to hypoxaemia

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A significant number of babies with congenital heart disease are cyanosed at birth. Despite being cyanosed, the majority of these babies survive and remain relatively well in their early life. These babies can continue to grow and develop for variable periods of time without major intervention. Because immediate surgical correction is not always possible, some babies will be cyanosed for up to several years before complete correction is possible. It is clear that these babies adapt to chronic hypoxaemia in ways that still allow the tissues to receive sufficient oxygen for survival and growth. This adaptation process is not fully understood, though some recent evidence has emerged that cyanotic babies adapt through peripheral vasodilation. Peripheral vasodilation is possibly one of the most important adaptations to chronic hypoxaemia however, the exact mechanism is largely unknown. Studies in adults who have adapted to living at high altitudes (i.e. with low oxygen levels) suggest that an alteration in the way the body deals with nitrogen species is at the centre of peripheral vasodilation. This study will explore the mechanism by which cyanosed babies have adapted to low oxygen levels by measuring nitrogen species (nitrates, nitrites and nitric oxide) and the degree of vasodilation by quanitfying microvascular perfusion in babies awaiting corrective surgery. A greater understanding of the mechanisms may allow the identification of babies who fail to make appropriate adaptive changes. It may allow early targeted intervention during peri-operative care and a more rational use of drugs such as NO in the peri-operative setting.

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