A New Method Makes It Possible to Estimate the Actual Prevalence of Drug Use During Pregnancy

Barcelona, 23 December 2008.- Researchers from the Childhood and Environmental Research Group of the Municipal Institute for Medical Research (IMIM-Hospital del Mar), a group that is connected to the Paediatrics Service at Hospital del Mar, **have used meconium or newborns' first excrement to establish whether the mother consumed drugs during the last two trimesters of pregnancy**. Until now, only urine samples have been used to establish drug use, which is a method that, although reliable, only reflects exposure or consumption during the 1-4 days prior to the analysis.

The purpose of this project was to estimate the drug use rate in pregnant women and the effects of chronic drug exposure on foetuses and neonates through an analysis of their meconium, a structured maternal interview and clinical observation of the newborn (weight, size, head circumference, ponderal index, brain to body mass ratio and other clinical signs). According to Óscar García, the first signatory of the article, "Meconium begins to form between weeks 12 and 16 of a pregnancy and stores the information until birth. Since, in addition to this we can say that collecting it is not invasive to the mother or the baby, meconium turns out to be a very good organic substance for making a careful assessment of foetal exposure to drug abuse and identifying the neonates at risk that may require treatment or follow-up".

The study sample included 1,209 mother-child couples that were cared for from October 2002 - February 2004. **The meconium analysis showed positive results for drug use during pregnancy in 10.9% of the entire population studied**, with 5.3% testing positive for cannabis, 4.7% for heroin and 2.6% for cocaine, whereas 1.5% tested positive for the consumption of various drugs combined. Contrasting the meconium analysis in the study with the maternal interview confirmed the well-known underreporting of tobacco use during pregnancy and the incomplete declaration of drug use by pregnant women. In fact, only 1.3% stated they had consumed cannabis, 0.3% heroin and 1.2% cocaine.

Neonate exposure to drugs was associated with significantly lower birth sizes and weights along with higher brain to body mass ratios in neonates exposed only to cocaine or to more than one drug simultaneously. The study also showed a greater number of previous miscarriages in consuming mothers.

The results also reveal a strong association between tobacco use and cocaine consumption or polydrug use. From the socio-demographic analysis carried out, it was gathered that drug use during pregnancy is not associated with any particular ethnicity or working class in the population studied.

According to Óscar García, "Despite the fact that analytical methods today are specific and sensitive to detecting even the most minimum quantities of drugs and their derivatives, it is

necessary to continue researching so that this information can be applied to clinical practice and in order to discover the mechanism through which drugs are passed on to the foetus through the placenta and their effects on neonates".

This study has made it possible to demonstrate the existence of hidden and significant drug use during pregnancy with the resulting repercussions on the proper neurodevelopment of the foetuses that have been exposed and it has made it possible to obtain information on the actual prevalence of drug use. For this reason, the researchers say that meconium analysis is a good diagnostic tool in cases of neonates with an elevated suspicion of intrauterine exposure to drug abuse as a correct diagnosis will make it so that newborns can be offered the appropriate treatment and follow-up.