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Prenatal exposure to drugs of abuse during pregnancy on the island of Eivissa

Detection of prenatal exposure to drugs of abuse is critical to ensure adequate monitoring of the affected children. A doctoral dissertation defended at the UAB compares the utility of maternal hair and meconium in detecting prenatal exposure to drug in the third trimester of pregnancy on the island of Eivissa. The results suggest that maternal hair is more sensitive than meconium to detect exposure to cannabis. Improved detection methods could optimize prevention.

The detection of prenatal exposure to drugs of abuse is essential to ensuring an adequate monitoring of the affected children. The maternal questionnaire is not effective as a screening tool. In recent years, literature has described maternal hair and meconium as biological matrices to assess this exposure. The objectives are to compare two alternative matrices to detect prenatal drug exposure in the third trimester of pregnancy, in order to assess its use as a screening tool, and to estimate the prevalence of drug use by pregnant women living in Eivissa, using structured questionnaires and biomarkers in maternal hair. Furthermore, we investigate the possible harmful effects of maternal drug use.

Between January and March 2010, samples of maternal hair and meconium were collected in 107 mother-infant pairs at Can Misses Hospital in Eivissa. Opiates, cocaine, cannabis, methadone, amphetamines, 3,4-methylenedioxymethamphetamine (MDMA) and its metabolites were determined in a proximal segment of maternal hair 3 cm in length, corresponding to the last trimester of pregnancy, by gas chromatography-spectrometry mass. Data were collected on sociodemographic characteristics and consumption of tobacco, alcohol, prescription drugs and drugs of abuse during pregnancy, using a structured questionnaire.

In the questionnaire, only 1.9% of mothers reported drug abuse during pregnancy. Maternal hair analysis was positive for drugs of abuse in 17 cases (15.9%): 11 to cannabis, 7 to cocaine, 1 to cannabis and ecstasy, and 1 to cannabis and cocaine. Only one mother declared cannabis use and another, cocaine. Of the 7 cases positive for cocaine in hair, 6 were confirmed in the study of meconium, while of the 11 cases positive for cannabis, only 3 were confirmed in meconium. We defined 2 different profiles of consumers: cocaine and cannabis (with only 2 cases of illicit drug detected). A case was detected with the highest values of cocaine in meconium published to date (1582 ng/g). Consumption during pregnancy of drugs of abuse was associated with the consumption of tobacco, a higher number of cigarettes and Spanish nationality of the mother.

This study revealed a high prevalence of drug abuse during pregnancy in this cohort. Improved screening methods could optimize the prevention and monitoring of exposed newborns. Maternal hair seems to be more effective than meconium to detect prenatal exposure to cannabis during the third trimester, so it could become a useful tool for screening.

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References

"Exposició fetal a drogues d'abús durant l'embaràs a l'illa d'Eivissa", Joan García Serra doctoral thesis, read at the IMIM-Barcelona, and supervised by professor Oriol Vall Combelles, Dr. Óscar García-Algar and Dra. Bibiana Fríguls Francitorra.

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