STUDY OF THE POSSIBLE IMPACT OF HOUSEHOLD USE OF PESTICIDES DURING PREGNANCY ON FETAL GROWTH, FROM THE PELAGIE MOTHER-CHILD COHORT

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Background and Aims: Some studies have shown that household pesticide use, indoor or outdoor, may entail significant exposure. Besides, some of these pesticides are suspected to be toxic for development. Our purpose was to determine whether household use of pesticides in early pregnancy was associated with impaired fetal growth of the babies.
Methods: A mother-child cohort (PELAGIE) was conducted in Brittany (France) and enrolled 3421 pregnant women before 19 gestational weeks between 2002 and 2006. Birth weight and head circumference were collected from maternity records. A questionnaire of self-reported household use of pesticides in early pregnancy was collected when the child reached 2 years for 44% of the cohort (n=1505). Scores of exposure to eight pesticide uses were built according to the user, frequency, type of products, and place of use, assuming that these differences in use corresponded to different exposure levels Adjusted means of fetal growth indicators were performed from multivariate linear models.
Results: A decrease in birth weight was observed with increasing score of exposure to pesticides used on outdoor plants (no use: mean=3387 g; score<median: mean=3351 g; score>median: mean=3278 g; p-trend=0.001). A decreased head circumference was observed with increasing score of exposure to insecticides used on paths and lawns (no use: mean=34.9 cm; score<median: mean=35.1 cm; score>median: mean=34.3 cm; p-trend=0.01), and to a lesser degree with increasing score of exposure to pesticides used to treat wood framework.
Conclusions: Our study observed a possible impact on fetal growth of household use of pesticides during pregnancy, in particular to treat plants. We proposed a scoring method to improve assessment of household pesticide exposure. This scoring method appears to be efficient, taking into account all details reported in the questionnaire, and allows to assess dose-response relationships.