## Exposure to Second Hand Smoke during Pregnancy: Umbilical Cord Blood Cotinine Measures

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### Abstract
Exposure to Second Hand Smoke (SHS) is a major worldwide public health problem. Exposure to SHS during pregnancy leads to adverse effects on the mother and fetus. The present investigation was designed to evaluate the association between mother’s urinary cotinine concentration and umbilical cord blood cotinine level and to determine the accuracy of mother’s reported exposure to cigarette smoke during pregnancy.

### Materials & Methods
This cross-sectional study was conducted on 108 non-smoker pregnant women in Tehran, Iran. Mothers’ exposure to cigarette smoke was evaluated through reports and urinary cotinine levels and the fetal exposure was measured by level of cotinine in the umbilical cord blood. The association of mothers’ urinary and umbilical cord cotinine was evaluated. Urine samples were collected from the mothers and blood samples after birth were taken from the umbilical cord. The data were analyzed using independent t-test, chi-square test, Pearson and Spearman correlation and Kappa test.

### Results
The geometric mean of the cotinine concentration of the maternal urine and the umbilical cord serum were 27.4 ng/ml and 3.71 ng/ml, respectively in the exposed group and 0.75 ng/ml and 0.40 ng/ml, respectively in the non-exposed group (p<0.001). There was a significant correlation between the maternal urinary and umbilical cord serum cotinine (p<0.001, r=0.58). Significant association was found between maternal reports of cigarette smoke exposure with urinary (Kappa= 96%) and umbilical cord (Kappa= 98%) cotinine (p< 0.001).

### Conclusions
The results of the present study suggest relatively high association among cotinine and reported SHS exposure, suggesting an equal degree of validity for both objective and reported measures.

### Keywords
Secondhand smoke exposure, pregnancy, cigarette, cotinine

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