

MATERNAL AND FETAL DIFFERENCES IN BISPHENOL A EXPOSURE DURING PREGNANCY-REVIEWING THE EVIDENCE

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Background and Aims: Bisphenol A (BPA) is widely used products including: plastic bottles, food can linings and carbonless paper receipts is found in over 95% of the US general population and pregnant women, and is of concern for potential developmental effects. The fetus has less capacity to conjugate BPA, thus potentially leading to higher exposures of unconjugated BPA, the more biologically active compound, potentially leading to greater risks. We compare maternal and fetal levels of BPA using maternal serum and amniotic fluid from 2nd trimester pregnant women and discuss how it compares to existing data.

Methods: We are collecting maternal serum and amniotic fluids from 100 2nd trimester pregnant women undergoing elective pregnancy terminations at San Francisco General Hospital. Women are interviewed about dietary intake of potentially BPA contaminated foods and beverages. Samples are collected in BPA-free containers and stored at -70C. We have conducted preliminary analysis on 26 samples for unconjugated, conjugated, and total BPA using high performance liquid chromatography with an ESA CoulArray 5600 detector (limit of detection 0.25 ng/mL).

Results: Preliminary results indicate 93% of participants eat food from metal cans; 42% regularly touch receipts; and 22% drink water from, hard plastic bottle. All women had detectable levels of BPA, similar to findings among the US population. Among the 26 paired samples, median levels of total BPA in amniotic fluid was 7.9 ng/mL compared to 1.2 ng/mL in maternal serum. Higher levels of unconjugated BPA compared to conjugated BPA was also found in amniotic fluid (median (IQR) ratio 2.8 (1.0-7.2)). Further results from the study population will be presented at the symposium and compared to other similar studies.

Conclusions: Data suggest greater fetal exposure to total and unconjugated BPA, consistent with studies suggesting the fetus has decreased capacity to metabolize BPA and may be at higher risk from BPA.