Maternal exposure to a brominated flame retardant and genitourinary conditions in male offspring.

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Source
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Abstract
BACKGROUND: The upward trend in industrial nations in the incidence of male genitourinary (GU) conditions may be attributed to increased exposure to endocrine disruptors. Polybrominated biphenyl (PBB), a brominated flame retardant, is one such suspected endocrine disruptor.

OBJECTIVE: We investigated the relationship between maternal serum levels of PBBs and GU conditions among male offspring exposed in utero.

METHODS: In this cohort study of sons born to women accidentally exposed to PBBs during 1973-1974, we examined self-reported data on GU conditions among male offspring in relation to maternal serum PBB levels. We used generalized estimating equations to calculate odds ratios (ORs), controlling for gestational age at birth.

RESULTS: Of 464 sons, 33 reported any GU condition (13 hernias, 10 hydroceles, 9 cryptorchidism, 5 hypospadias, and 1 varicocele). Four reported both hernia and hydrocele, and one both hernia and cryptorchidism. After adjustment for gestational age at birth, sons of highly exposed women (> 5 ppb) were twice as likely to report any GU condition compared with sons of the least exposed women [< or =1 ppb; OR = 2.0; 95% confidence interval (CI), 0.8-5.1]. This risk was increased when we excluded sons born after the exposure but before the mother's serum PBB measurement (OR = 3.1; 95% CI, 1.0-9.1). We found evidence of a 3-fold increase in reported hernia or hydrocele among sons with higher PBB exposure (test of trend p-value = 0.04). Neither hypospadias nor cryptorchidism was individually associated with PBB exposure.

CONCLUSIONS: Although cryptorchidism and hypospadias were not associated with in utero PBB exposure, this study suggests that other GU conditions may be associated with exposure to endocrine-disrupting chemicals during development.

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