

Additional Comment

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Now, Dr. Hirahara presented the most valuable results of the study on the concentrations of serum bisphenol A level both in the pregnant women and their fetal cord blood. As additional comments, we would like to describe our investigation of the concentration of serum bisphenol A level both in the boys with hypospadias and their mothers in the Kanagawa Children's Medical Center.

First, we will talk about embryological and etiologic problems on the hypospadias in brief. Hypospadias is a congenital abnormality of penis that results from deficient anterior urethral development. We can find the genetic causes in some cases. But in the majority of cases, the underlying etiology remains unknown. Low birth weight, low gestational age and twin births have been reported as risk factors for the hypospadias. In recent advance, studies in animal model revealed that the endocrine disrupters may have the effects on the development of the hypospadias. These background is considered in this investigation of bisphenol A in the boys with hypospadias and the mothers.

Subjects are the cases visiting in Kanagawa Children's Medical Center, thirty pairs of boys with hypospadias and their mothers. We collected the information of the parental ages at birth, histories of exposure of teratogen and habits in addition to the information of both of gestation and delivery of the patients. As you can see, there is no difference in the parental ages (mean paternal ages 31.7, mean maternal ages 29.5) from those of general population in Japan. But the birth weight (2287g) is likely to be lower.

We plot the values of concentration of serum bisphenol A in both boys and the mothers. But we could not find any correlation between the bisphenol A levels of the boys and the mothers.

We could not find no significant difference of bisphenol A level between the two groups. We now are grateful to Dr. Hirahara for referring the data of concentration of bisphenol A in both control pregnant women and their fetal cord blood. We also could not find any significant difference between the boys with hypospadias (1.32 ± 0.93) and cord blood (1.37 ± 2.29), but there is significant difference between the mothers (0.82 ± 0.42) and the control pregnant women (0.40 ± 0.29). For our data, thirty pairs of the boys and mothers are so limited and imperfect as the epidemiological study. In addition, control setting of our analysis is needed for further consideration on this imperfect results. But this may be the first step for further analysis of interaction of response systems to bisphenol A in human.

In conclusion, the mothers of boys with hypospadias had significantly higher concentrations of serum bisphenol A (BPA) than the control pregnant women. The causative mechanism for the higher level of BPA in the mothers remains to be answered. Further analysis of correlation between hypospadias and BPA, involving the interaction of response systems to the BPA, may be able to address this question and shed light on the potential effects of endocrine disrupters.