

## Language development is normal in children exposed in utero to anti epileptic drugs

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**Background and Objective:** It is widely known that offspring of women with epilepsy carry increased risk of congenital malformations. Intra uterine exposure to anti epileptic drugs (AEDs) might predispose the newborn to mild neurological impairments or withdrawal seizures. The late cognitive effects of intrauterine exposure to AEDs are largely uncertain.<sup>1,2</sup> The objective of this study was to compare language development of children exposed in utero to AED with that of healthy children.

**Methods:** The Kerala Registry of Epilepsy and Pregnancy is a program that is prospectively monitoring pregnancies in WWE. This program was started in 1998 and over 850 pregnancies have been enrolled so far. In this study cases, children exposed in utero to AEDs and aged 30-36 months (Group 1) were compared with healthy children matched for age and socioeconomic background, drawn from community and unexposed to AEDs in utero (Group 2). Language development was assessed by Reels test. Expressive, Receptive and Combined Language Quotients (ELQ, RLQ, CLQ) were derived from the ratio of respective language age by chronological age. Extensive data on antenatal drug exposure, and other factors that might influence language development were gathered according to standard protocol. We also correlated the CLQ with the motor and mental development quotients (MODQ and MEDQ) achieved by children in the Group 1 at 12 months of age. MODQ and MEDQ were derived from the Indian adaptation of Bailey Infant Developmental Scale.

**Results:** There were 75 children (boys 37) in Group 1 and 130 children (boys 57) in Group 2. Group 1 and 2 were comparable in terms of mean paternal age (35.2 and 34 years), maternal age (28.9 and 27.8 years), and education (81% and 93% respectively had formal education for eight years or more). Maternal epilepsy syndromes included generalized epilepsy 37 (49.3%), localization related epilepsy 36 (48%) and others 2 (2.7%). AED exposure in Group 1 included phenobarbital (28), phenytoin (18), carbamazepine (41), valproate (14), and others (7). There was no statistically significant difference in the mean  $\pm$  SD values for Group 1 when compared to Group 2 with regard to CLQ ( $96.2 \pm 12.1$  and  $96.9 \pm 15.0$ ), ELQ ( $95.7 \pm 13.2$  and  $94.7 \pm 15.8$ ) and RLQ ( $96.6 \pm 11.4$  and  $99.1 \pm 15.1$ ). There was no statistically significant difference in the mean CLQ values between those exposed to carbamazepine ( $97.0 \pm 13.2$ ), phenobarbital ( $98.3 \pm 10.3$ ), phenytoin ( $93.9 \pm 12.1$ ) and valproate ( $94.4 \pm 10.1$ ). There were 18 children among this cohort who had a low MEDQ less than 25<sup>th</sup> centile at 12 months of age. Only four of them (22.2%) had CLQ <25<sup>th</sup> centile, while others had CLQ >25<sup>th</sup> centile. History of Motor developmental delay (n=15) had statistically significant correlation with CLQ <25<sup>th</sup> centile. Perinatal or neonatal factors did not correlate with low CLQ.

**Conclusion:** Language development of children exposed in utero to AEDs was comparable to that of healthy children. Three quarter of those who had low MEDQ at 12 months later on caught up in language development.

### References

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# This paper was awarded the Tadokoro Prize, Best Poster Presentation, 1<sup>st</sup> Prize.