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Oral Presentations

O-2A-1

Birth weight versus child order: which one is more important for intellectual development at 5y?

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Objective: To evaluate in 5 year-old Chilean children the relationship among birth weight, birth order and intelligence quotient (IQ) controlling the effect of maternal variables.
Methods: In a representative sample of 250 Chilean preschool children enrolled in a state child care program[1] (birth weight >2500 g), we obtained birth weight (BW) and length (BL), maternal age (MA), mother's educational level (ME) and birth order (BO) from official registries. At 5 years, children were evaluated with the Intelligence Wechsler Scale (IQ) WPPSI-R by a trained psychologist. Variables were analysed as continuous and categorical; if not normally distributed, non-parametric statistics were used; uni and multivariate analysis were done. After ethical approval by INTA's ethics committee, informed consent was obtained from parents.
Results: 49.6% were girls, average BW was 3,412 ± 454 g, (17% ⩾2500 to 3000 g, 71% >3000 to 4000 g, 12% >4000 g; BL was 49.8 ± 1.7 cm, no stunting at birth (1.6% <2 SD HAZ, WHO 2006); IQ was 92 ± 9 score, with differences by BW categories; ME (17% high, 45% middle and 36% basic); and BO (38% first, 33% second and 29% third or greater) ($p < 0.001$). Linear regression showed that these associations were stronger in adjusted models, BW explained 9% (R^2) of variability in IQ. Interaction between BW and BO was tested ($p < 0.05$).
Conclusions: This study provides evidence that the relationship between BW and IQ score is dependent on BO and that a high BW does not condition higher IQ. We confirmed that a healthy birth weight in terms of intellectual development at 5y is 3000–4000 g. Our results suggest that in low income families, the position a child holds within his/her family plus favorable nutritional status at birth, are important to maximize mental development. In countries with high prevalence of both macrosomic and low birth weight babies interventions aimed at achieving healthy weights at birth are particularly relevant.
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Adjusted IQ score for all BW categories of and BO are shown in Fig 1. Firstborn children in all categories showed higher IQ scores. In children with high BW (>4000 g), the BO effect on IQ was stronger than that of BW. Several studies have shown that BO represents the social position of the child within the family, as confirmed by our results[2,3]. BW of 3000 to 4000 g showed the lowest IQ differences among categories of BO, for this BW group average IQ was closest to the expected mean normal (⩾100 IQ). Children of lower BW (<3000 g) showed no consistent relationship between IQ and BO.

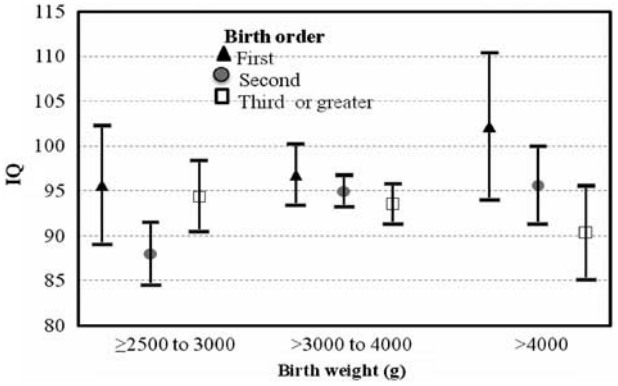

Fig. 1. Relation between birth weight and IQ score according to birth order. Mean IQ ± standard error, adjusted for mother's education level, maternal age at birth and sex of children. Reference: birth order list.

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O-2A-2

High pregnancy anxiety during mid-gestation is associated with decreased gray matter density in 6-9 year-old children

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