



Efficacy of Antenatal Corticosteroid Treatment on Neurodevelopmental Outcome according to Head Circumference at Birth

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BACKGROUND: There are concerns about the efficacy of antenatal corticosteroid treatment (ACT) in the growth-restricted fetus.

OBJECTIVE: To evaluate the effect of ACT on neurodevelopmental outcome at 2 years of corrected age according to the z score of birth head circumference (ZS HC) in a large prospective cohort of preterm infants.

METHODS: This study was conducted as a population-based, prospective, multicenter study, including 4,965 infants born between 24 and 33 weeks' gestation and whose status regarding ACT and the measurement of head circumference at birth were available. They were evaluated at 2 years of corrected age to assess neurological outcome. Three approaches were considered to estimate the effect of ACT on neurodevelopment: (i) logistic regression with adjustment on propensity score, (ii) weighted logistic regression using the inverse probability of treatment weighting method, and (iii) 1:1 matching of gestational age, ZS HC, and propensity score between treated and nontreated infants.

RESULTS: ACT was documented in 60% of infants. Three groups of infants were considered according to their ZS HC: between -3 and -1 standard deviation (SD), -1 and +1 SD, and +1 and +3 SD, respectively. ACT was associated with a significant improvement of neurodevelopmental outcome only for infants with an ZS HC of between +1 and +3 SD (adjusted OR 1.72; 95% CI 1.06-2.79). Moreover, ORs estimated in the -3 to -1 and +1 to +3 categories were significantly different.

CONCLUSION: We found beneficial effects of ACT on neurodevelopmental outcomes at 2 years of corrected age only in preterm infants with a ZS HC >1 SD.

Résumé en anglais

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