Causation

Children who were exposed to antenatal corticosteroids and had birth weights ≤1500 g did not have adverse growth, cognitive, or lung function outcomes at age 14 years


QUESTION: Are children who were exposed to antenatal corticosteroids and had birth weights ≤1500 g at increased risk of adverse growth, cognitive, and lung function outcomes at age 14 years?

Design
Cohort study.

Setting
A hospital in Melbourne, Australia.

Participants
154 consecutive infants (mean gestational age 29.4 wks, 53% boys) with birth weights ≤1500 g who survived to age 14 years, corrected for prematurity. 130 children (84%) were assessed at age 14 years.

Assessment of risk factors
78 mothers (51%) had received 1 course of antenatal corticosteroids (betamethasone) to accelerate fetal lung maturation, and 76 (49%) had not received any antenatal corticosteroids.

Main outcome measures
Height, weight, and head circumference (z scores for appropriate age and sex, relative to the British Growth Reference of 1990); cognition (Weschler Intelligence Scale for Children—Third Edition [WISC-III]); visual memory (Bead Memory Test from the Stanford-Binet Intelligence Scale); visual motor, memory, and organisational skills (Complex Figure Test of Rey); academic achievement (Wide Range Achievement Test [WRAT3]); and lung volume and flow rates. Outcome assessors were unaware of exposure to antenatal corticosteroids.

Main results
At age 14 years, children who had been exposed to antenatal corticosteroids were taller than those who had not been exposed (mean difference in z scores 0.36, 95% CI 0.01 to 0.72, adjusted for birth weight and midparental height), and had better cognitive functioning as assessed by the WISC-III full scale (mean difference 6.3, CI 1.6 to 11.0, adjusted for social class and maternal education) and performance scale (mean difference 5.5, CI 0.6 to 10.4, adjusted for social class, maternal education, bronchopulmonary dysplasia, cerebroventricular haemorrhage, and birth weight). The groups did not differ for weight; head circumference; visual memory; visual motor, memory, and organisational skills; academic achievement; or lung function.

Conclusion
Children who were exposed to antenatal corticosteroids and had birth weights ≤1500 g were taller and had better cognitive functioning at age 14 years than children who were not exposed to antenatal corticosteroids.