



Relative contributions of prenatal complications, perinatal characteristics, neonatal morbidities and socio-economic conditions of preterm infants on the occurrence of developmental disorders up to 7 years of age

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Background: To investigate the relative contributions of prenatal complications, perinatal characteristics, neonatal morbidities and socio-economic conditions on the occurrence of motor, sensory, cognitive, language and psychological disorders in a large longitudinal preterm infant population during the first 7 years after birth.

Methods: The study population comprised 4122 infants born at <35 weeks of gestation who were followed for an average of 74.0 months after birth. Developmental disorders, including motor, sensory, cognitive, language and psychological, were assessed at each follow-up visit from 18 months to 7 years of age. The investigated determinants included prenatal complications (prolonged rupture of membranes >24 hours, intrauterine growth restriction, preterm labour and maternal hypertension), perinatal characteristics (gender, multiple pregnancies, gestational age, birth weight, APGAR score and intubation or ventilation in the delivery room), neonatal complications (low weight gain during hospitalization, respiratory assistance, severe neurological anomalies, nosocomial infections) and socio-economic characteristics (socio-economic level, parental separation, urbanicity). Based on hazard ratios determined using a propensity score matching approach, population-attributable fractions (PAF) were calculated for each of the four types of determinants and for each developmental disorder.

Results: The percentages of motor, sensory, cognitive, language and psychological disorders were 17.0, 13.4, 29.1, 25.9 and 26.1%, respectively. The PAF for the perinatal characteristics were the highest and they were similar for the different developmental disorders considered (around 60%). For the neonatal and socio-economic determinants, the PAF varied according to the disorder, with contributions of up to 17% for motor and 27% for language disorders, respectively. Finally, prenatal complications had the lowest contributions (between 6 and 13%).

Conclusions: This study illustrates the heterogeneity of risk factors on the risk of developmental disorder in preterm infants. These results suggest the importance of considering both medical and psycho-social follow-ups of preterm infants and their families.

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