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# NEONATAL AND FAMILY PREDICTORS OF SOCIAL-COMMUNICATION IMPAIRMENTS IN VERY PRETERM CHILDREN AT AGE FIVE

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Very preterm (VPT) infants have a higher risk of social-communication deficits. Social-communication deficits are a key characteristic of autism spectrum disorder (ASD) and studies have shown an association between increased cerebrospinal fluid (CSF) volume and the risk of ASD. However, this association has not been examined in VPT children, who are prone to social-communication deficits. This study investigated whether CSF volume based on neonatal MRI and social-communication deficits at age five years in both VPT and full term (FT) children were correlated. This study also examined the extent to which infant medical complications, social adversity and parental involvement in early learning influenced social-communication problems. CSF volume at birth was calculated by using Advanced Normalization Tools (ANTs) software. At five-year follow-up visits, parents completed the Social-Communication Impairment scale of the Social Responsiveness Scale (SRS-2) and the Parental Involvement in Developmental Advance (PIDA) section of the StimQ-Preschool, which measure social-communication problems and parental involvement in developmental advances respectively. Results found that VPT infants had significantly higher CSF volume than FT infants after adjusting for total intracranial volume ( $p < 0.001$ ). At age five, VPT children had significantly higher SRS-2 scores ( $p = 0.03$ ) and significantly lower PIDA scores ( $p = 0.02$ ) than FT children after adjusting for social background. A multivariate regression model assessing the extent to which CSF volume ( $p = 0.8$ ), total intracranial volume ( $p = 0.6$ ), infant medical complications ( $p = 0.4$ ), social adversity ( $p = 0.6$ ) and PIDA scores ( $p = 0.004$ ) influenced SRS-2 scores found that parental involvement in early learning were associated with most of the variation in SRS-2 scores ( $\beta = -0.38$ ,  $p = 0.004$ ). These findings add to research explaining the differences in developmental outcomes of VPT and FT infants and suggest that further research should be conducted to understand how a supportive learning environment may support brain development and early social-communication skills.