TORCH Group Infections: A Possible Cause of Cerebral Palsy

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Background

TORCH infections may severely affect the foetus and the neonate, particularly causing neurologic and neurosensorial disorders. The importance of the association of TORCH infections with cerebral palsy (CP) in children was evaluated on a population level concerning aetiology, clinical presentation, evolution and intervention.

Patient and methods

The National Surveillance of Cerebral Palsy in Portugal at five years of age (PVNPC5A) systematically registers children with PC born since 2001. The definition and classification of Surveillance of Cerebral Palsy in Europe (SCPE) are used. Clinical and functional characterization as well as risk factors for CP was carried out in children born 2001-2010 comparing cases associated with TORCH infection (definition TORCHnet) with the remainder. Clinical complexity of CP was measured on 0 to 4 scale based on presence of four indicators: GMFCS (levels III-V); cognition (IQ<50); active epilepsy (at least annual seizures under medication) and severe visual deficit (SCPE).

Results

TORCH infection was associated to 70 out of 1193 cases (6%): CMV 42, HIV 13, syphilis 6 and CMV+VIH 2 (Fig.1). Bilateral spastic CP predominated (71% vs 53%) (Fig.2). In those cases associated to TORCH, functional impairment (GMFCS, BMFM, cognition and Viking Speech Scale) is significantly more severe and comorbidities more frequent (epilepsy, severe neurosensorial handicap) (Fig.3). Likewise, MRI shows a greater percentage of brain malformations (40% vs. 12%) and more miscellaneous cases (33% vs. 10%) with rare cases of normal MRI (2,5% vs 5,7%) (Fig.4). TORCH infection is significantly associated (p<0.05) with CP whether term/near term delivery (Fig.5), younger mother’s age (< 20 years old) (Fig.6), being born small for gestational age (37% vs. 17%), attributed Apgar score < 6 (6% vs. 15%), less registration of seizures in the first 72 hours after birth (12% vs. 25%) and less registered admissions in a neonatal unit (45% vs. 64%).

Conclusion

TORCH infections are frequently reported in children with CP. These children seldom required special neonatal care but the severity of CP appears to be higher at 5 years of age. Data suggest that TORCH infection should be considered both in children with CP or with high suspicion for CP without other known risk factors, specially if born at term or near term, small for gestational age, from young mothers and if encephalus malformations are present.

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