

Safety and Feasibility of Autologous Umbilical Cord Blood Stem Cell Intravenous Infusion in a toddler with Spastic Diplegia/Cerebral Palsy: a Case Report

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Introduction: Cerebral palsy's (CP) worldwide increasing prevalence (2.12 to 2.45 per 1000 live births) generates variable degrees of developmental disability with severe psychological and financial impact to families (lifetime cost 921,000 US\$) and health care providers alike.

Materials and Methods: A first born of Thai-Caucasian extraction unable to stand or walk at 19 months of age was subsequently diagnosed with spastic diplegia. Cord blood had been stored at an uneventful full term caesarian section. Apgar score of 7 and 10, birth weight 3,320 grams. Shortly after the diagnosis of CP the parents withdrew the autologous sample ($TNC\ 662.4 \times 10^6$) that was thawed at bedside (post thaw viability after 19 months of storage 93.31%). Mild and transient nausea was noted during the 30 minute iv infusion; temperature, BP, SpO₂ and HR were all within normal range. The toddler was discharged after a 6 hour observation.

Results: Substantial motor improvements were noted already at 7 weeks post infusion when the child was able to stand and walk with support. At 27 months of age, he walks independently. Reduced spasticity bilaterally is evident. Weight and height development follows the 50th percentile for Thai children. Intellectually he is age congruent and bilingual. No side effects have been noted up to 12 months of follow up.

Conclusions: We report here the safety and feasibility of autologous umbilical cord blood stem cell iv infusion in a toddler with Spastic Diplegia/Cerebral Palsy as the first case in Thailand/Asia. Encouraging improvement was observed similarly to observations from around 30 cases at Duke University Medical Center.



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