

Effects of granulocyte colony-stimulating factor treatment in children and patients with cerebral palsy: a preliminary report

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ABSTRACT

Introduction: Recent reports have revealed that neuroinflammation and apoptosis in brains affected by cerebral palsy could be therapeutic targets. Granulocyte colony-stimulating factor (G-CSF) exerts anti-inflammatory and antiapoptosis effects and stimulates the proliferation of neural stem and progenitor cells in the brain.

Purpose: To assess the efficacy and safety of G-CSF treatment in children and adolescents with CP.

Materials and methods: Six patients with spastic tetraplegia CP aged 3-15 years were enrolled in this study. Five patients had GMFCS (Gross Motor Function Classification System) level at V, three children had epilepsy, and three had severe mental retardation. We used the gross motor function measure-66 (GMFM-66) to assess motor function.

GCSF (5µg/kg/body/day) was administered subcutaneously for five consecutive days during the four months. The parents also evaluated the physical and mental development of their children.

Results: We observed improvement in motor function in patients with CP on the GMFM-66 scale. Parents reported improvement in behavior, speech development, and a decrease in spasticity in children with CP. G-CSF therapy was well-tolerated. No side effects were observed during the study.

Conclusions: Our preliminary report suggests that G-CSF treatment improves motor and mental function in patients with CP. Further studies are needed to confirm these observations.

Key words: Granulocyte colony-stimulating factor, children, cerebral palsy