LEG LENGTH DISCREPANCY IN CHILDREN WITH HEMIPLEGIC CEREBRAL PALSY

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Background

Cerebral palsy (CP) is one of the most common congenital disorders in children affecting approximately 2-3 infants per 1000 births. Of the children diagnosed with cerebral palsy, hemiplegic cerebral palsy – in which one side of a child’s body is affected – is the most prevalent, occurring in 20-30% of children with CP. Children with hemiplegic cerebral palsy often have a limb length discrepancy with the involved side being shorter. However, conclusive research has not been conducted to verify this assumption. This study assesses the leg length discrepancy in children with hemiplegic CP and if this discrepancy changes as the child ages.

Results

Of these 54 patients, 23 had left-sided hemiplegia and 31 had right-sided hemiplegia. The leg on the involved side was shorter than the uninvolved side in 53 patients (98.1%). The range of the initial leg length differences varied from 0 to 2.5 cm. In the 54 patients, the involved side was shorter by an average of 1.2 cm, with a standard deviation of 0.6 cm. The matched-pair test resulted in a t-value of 14.2, with corresponding p-value of 5.2*10^{-20}. Of the 7 (13%) patients that had serial scanograms, the difference in limb length tended to initially increase with age, but the discrepancies decreased between the approximate ages of 11-13 years.

Methods

The medical records of 54 patients, 26 females and 28 males, with hemiplegic cerebral palsy were reviewed. Patients whose limb lengths were measured using scanograms and had no previous bony or soft tissue surgeries were included in the study. A matched pair t-test was used to evaluate the data. We tested the null hypothesis that there was no discrepancy between the involved side and the uninvolved side against the alternative hypothesis that the involved side had a shorter length than the uninvolved side.

Conclusion

The leg length on the involved side of a child with hemiplegic CP is significantly shorter than the leg on the uninvolved side. This limb length discrepancy decreases over time, especially between the approximate ages of 11-13 years old. Physicians who treat children with hemiplegic CP should consider this self-correction of the leg length discrepancy when determining appropriate treatment for these children.