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Evaluation of upper extremity muscle strength improvement in patients with cervical disc herniation through cervical epidural block [Pilot study]

Abstract:

This pilot study aimed to evaluate the effectiveness of cervical epidural block (CEB) in improving upper extremity muscle strength (MS) in individuals diagnosed with cervical disc herniation (CDH). A cohort of 5 patients (4 men, 1 woman) diagnosed with CDH underwent a single CEB treatment. Patients were monitored weekly for 2 weeks in the outpatient clinic. MS was assessed three times using dynamometers, and the average value was recorded. Assessments were conducted at baseline and at regular intervals during the treatment. Pain levels for neck and upper extremity radiating pain were measured using the visual analogue scale (VAS). The average age of the patients was 48 years (36–78), and the affected disc levels were C5–6(3), C6–7(1), and C5–6–7(1) patient. In terms of pain, the neck VAS decreased by 3.6 points (6.8 to 3.2), and the arm VAS decreased by 4.4 points (7.4 to 3.0). The average MS before the procedure using dynamometry was 32.7 kg on the healthy side (HS) and 24.1 kg on the affected side (AS). The immediate post-procedure evaluation showed changes of 1.8 kg and 5.6 kg [Immediately post-CEB (IMP) to pre-CEB (PRE)]. The average changes in the first week were 0.4 kg (HS), 4.8 kg (AS) (1 week after CEB (P1) to PRE), -1.4 kg (HS), -0.8 kg (AS) (P1 to IMP). The average changes in the 2nd week were 0.5 kg (HS), 4.3 kg (AS) (2 weeks after CEB (P2) to PRE), 0.1 kg (HS), -0.5 kg (AS) (P2 to P1). These findings suggest that CEB has the potential to improve upper extremity muscle weakness associated with CDH.

Biography

Kwang Ryeol Kim has completed his B.D. at the age of 24 years from Keimyung University, Republic of Korea in 2010 and M.D. at the age of 27 years from same University. He plans to pursue Ph.D. in 2024 from Kyungpook National University, Republic of Korea. He completed his residency in Neurosurgery department at Keimyung University Dongsan Medical Center (DSMC) until 2015. He served as a Military Doctor from 2015 to 2018. He completed a Spine fellowship at DSMC in 2018 and a Spine fellowship at Gangnam Severance Hospital in 2019. In 2020, he began his career as an assistant professor at the Catholic Kwandong University, International St. Mary's Hospital, and Republic of Korea. In 2023, he moved to Daegu Catholic University Hospital, Republic of Korea. He is the Spine specialist of Neurosurgery department of Daegu Catholic University, Republic of Korea. He has 14 publications that have been cited over 130 times, and his publication h-index is 7. He has been serving as a reviewer of several reputed journals. (Spine, Global spine journal, Neurospine, etc.)