

Vibration therapy: An adjunct to neuro-rehabilitation in cerebral palsy

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Sir,

Cerebral palsy (CP) is a common motor disorder in children. It is a non-progressive brain damage and the features can include spasticity, reduced motor control and strength, balance issues, contractures, deformities, etc. The GMFCS (Gross Motor Function Classification System) classifies the physical mobility level of the CP child into five levels.

Vibration therapy has been used in various neurological conditions like stroke, spinal cord injuries Parkinson's disease etc. It works by stimulating the alpha-motor neurons found in the muscle spindles and leads to the tonic vibration reflex. This reflex increases voluntary muscle contraction. The vibration also stimulates the peripheral mechanoreceptors that can induce neuroplasticity through the somatosensory as well as motor pathways if repeatedly applied. Whole body vibration can recruit the previously asleep motor units and this can lead to an increase in muscular strength and mass. Vibration can also be applied to certain muscles instead of the whole body. A device with a vibrating frequency of a few to 50Hz can be used.(1)

A study conducted by Alena et al in 2023 concluded that Vibration therapy affects mobility and gross motor function positively, irrespective of the used frequency.(2) Tekin et al 2021 had a study on spastic and hemiparetic cerebral palsy patients and they found that whole-body vibration therapy inhibited spasticity and improved motor function.(3) A systematic review by Syed Ali Hassain et al in 2023 concluded that vibration therapy was cost-efficient, safe to use, and had positive effects on spasticity, balance (both static and dynamic), motor function, and range of motion in patients with spastic cerebral palsy.(4) A feasibility study by Amanuele et al in 2019 found that rMV (repeated muscle vibration) can be effective in patients of CP with excessive drooling. Moreover, it can also improve

swallowing and help in maturing the oral motor control in cerebral palsy patients.(5)

Vibration therapy is a technique that further needs exploration, yet the available literature suggests that it is effective, safe, and easily applicable in both home and clinical settings. It is the need of the hour that it is used as an adjunct to the neurorehabilitation techniques of cerebral palsy. It can prove to be a simple but technical modification in the conventional treatment approaches for CP.

Keywords: Cerebral palsy, Vibration therapy, Neurorehabilitation.

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