Novel use of an optokinetic chart stimulation intervention for restoration of muscle strength and mobility in a bed-bound patient with postcritical illness myopathy

Sir,

Critical illness polyneuropathy, critical illness myopathy, or both occur in 25% to 45% of admissions to intensive care units (ITU).[1] Electrophysiological studies are used for differential diagnosis.[1-3] Some authors bundle the two together as critical illness myopathy and/or neuropathy (CRIMYNE).[3] Causes of CRIMYNE include sepsis,[4] systemic inflammatory response syndrome,[4] and multiorgan failure.[4] Muscle weakness is the most common feature.[3]

CRIMYNE creates economic budgetary strain[3] due to prolonged lengths of stay and rehabilitation,[3] chronic disability, and poor quality of life. There is need to find therapies that speed up recovery of muscle strength, minimize chronic disability, reduce length of stay, and improve quality of life. This letter aims to plug the gap on the need for a more effective form of rehabilitation by providing further preliminary evidence for the use of novel optokinetic chart stimulation (OKCS)[5] for rehabilitation of CRIMYNE.

A 71-year-old patient was admitted to the hospital with a 3-week history of diarrhea. A history of blood stained feces 2 days prior to the admission was also noted. Sigmoidoscopy showed mucosal inflammation of the rectum and mid-descending colon, with linear ulceration and bleeding on contact. The patient underwent subtotal colectomy 4 days after sigmoidoscopy. From ITU, the patient was transferred to an infectious diseases ward because she had vancomycin-resistant enterococcus infection. For two and a quarter months she underwent conventional rehabilitation but could still neither move her lower limbs nor sit independently and thus remained bed bound.

After 2 weeks of OKCS in half-lying in bed, the patient improved to a point where OKCS as carried out with the patient sitting over the edge of the bed for a further 4 weeks. The chart was moved from side to side at approximately one cycle per second for 3 min. This was followed by moving the chart up and down for 3 min and then forwards and back for another 3 min.[5] After 2 weeks of OKCS, standing on an airex-balance pad for up to 3 min was added.

On discharge, at the end of 6 weeks of OKCS treatment, aggregate bilateral lower limb strength increased from 1/5 to 4/5. The total individual Oxford Scale scores for each of the lower limbs improved from 15/75 to 60/75. The Barthel Index improved from 0 out of 20 to 17 out of 20.

The fact that it took 6 weeks of OKCS to get the patient from being bed bound to independent mobility with a wheeled zimmer walking aid when the patient had not progressed after two and a quarter months of conventional rehabilitation demonstrates that the stimulation made a greater contribution rather than that played by natural recovery. OKCS uses a piece of laminated A4 paper, making it accessible to rural populations even in developing countries. Another clinical implication is that OKCS provides a way to improve nerve impulses to muscles to restore muscle strength without severely disabled patients having to carry out the tiring physical activity.

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