

POGP CONFERENCE 2014

Pelvic floor muscle training and its impact on neurogenic detrusor overactivity in incomplete spinal cord injury

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Abstract

A cost-effective conservative intervention involving pelvic floor muscle (PFM) training (PFMT) for urinary incontinence (UI) has never before been tested in cases of spinal cord injury (SCI). Improving continence is a priority in SCI. A case-control study determined that residual voluntary pathways remaining after incomplete SCI can be boosted by PFMT so as to improve continence and quality of life. Two participants with a chronic suprasacral incomplete SCI, residual PFM sensorimotor function, neurogenic detrusor overactivity (NDO) and UI consented to participate in a trial. Individualized PFMT was administered for 6 weeks by a physiotherapist. Standard cystometrograms were performed before and after PFMT. A self-controlled urge keypad measured levels of urge UI. The strengths of PFM and sphincter contractions were recorded with a balloon and surface electrodes. The outcome measures included: (1) urinary urgency; (2) the strength and endurance of the PFMs; and (3) suppression of NDO during PFM contractions in the absence of bladder treatment with anti-muscarinic drugs. The participants performed residual PFM contractions in response to their urge to suppress their detrusor pressures. Following 6 weeks of PFMT, both subjects showed a significant increase in PFM endurance, as compared to values recorded before PFMT, that was associated with suppression of NDO by approximately 70% in one individual and 12% in the other. This study shows for the first time that PFMT in incomplete SCI has the potential for promoting continence. These preliminary results support the need for a larger cohort study incorporating 16 weeks of PFMT, as described in recent literature for other conditions. This study explores the potential for neuroplasticity of continence mechanisms that can be targeted for physiotherapy interventions for SCI.

Keywords: incomplete spinal cord injury, neurogenic detrusor overactivity, pelvic floor muscle training, urgency, urinary incontinence.

Acknowledgements

We would like to thank the volunteer subjects, and Sister Judith Susser and Dr Sarah Knight from the London Spinal Cord Injury Centre.

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rehabilitation centre dedicated to intensive activity-based physiotherapy for people with spinal cord injuries at the Arcángel Foundation in Bogotá. After being awarded with a prestigious COLFUTURO scholarship, Natalia completed an MSc in Clinical Neuroscience at University College London in 2007, and joined the London Spinal Cord Injury Centre (LSCIC), Royal National Orthopaedics Hospital NHS Trust, Stanmore, Middlesex, in 2009. In 2010, she became a member of the CSP, and registered with the Health and Care Professions Council. At the LSCIC, Natalia provides support in the clinical

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