Service Priorities and Programmes

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Incorporation of Intermittent Cryocompression in Anterior Cruciate Ligament Reconstruction (ACLR) Rehabilitation Program – Enhances Recovery in the Immediate Postoperative Phase

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Introduction

Cryotherapy followed with exercise therapy, pressure bandage and electrical stimulation are frequently used modalities in ACLR rehabilitation program. With service advancement, cryocompression in which cryotherapy and pneumatic compression applied simultaneously to the operated knee joint was recently incorporated into the ACLR rehabilitation program.

Objectives

This study is to evaluate the effectiveness of ACLR rehabilitation program after incorporation of cryocompression therapy in the immediate postoperative phase.

Methodology

It was a retrospective pre- and post-test study. Patients' data and records were retrieved from September 2012 to December 2013. Two sessions (morning and afternoon) of physiotherapy training were offered daily. Each session included 15-min cryocompression, ACLR rehabilitation training and 15-min cryocompression in sequence. Outcome measures included postoperative knee pain at rest in Numeric Pain Rating Scale (NPRS); Active range of motion (AROM) of both extension and flexion of operated knee; girth measurement of the operated knee joint before and after each physiotherapy session at Post-Operative Day 1 (POD1). Global perceived treatment effect was measured with 21-point Numeric Global Rating of Change Scale (NGRCS) with extreme values of –10 (worst change in condition) to +10 (best change of condition) and 0 representing no change in condition.

Result

53 patients clinically admitted for ACLR with mean age of 29.87 ± 6.43 were included in the study. At POD1 before intervention, the mean NPRS of operated knee at rest was 6.06 + 1.21 while the mean AROM of the operated knee was -7.13 ± 4.47 degrees in extension and 18.49 ± 9.05 degrees in flexion. After intervention, the mean NPRS at rest significantly reduced to 3.34 + 0.67 ($p<0.0001$) while AROM of the operated knee improved significantly by 86.26% (-0.98 ¬+ 2.00 degrees) in extension

and 216.33% (58.49 + 7.30 degrees) in flexion ($p<0.0001$). No significant reduction of operated knee girth measurement was found ($p>0.05$). Positive feedback from the patients during immediate postoperative phase was found with the mean NGRCS of 3.47 + 0.95. ACLR rehabilitation program incorporated with intermittent cryocompression in the immediate postoperative phase significantly improved pain and range of knee joint motion in patients. Further studies on its application in later phase of rehabilitation program would be beneficial for improving the clinical management of patients after ACLR.