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A Pilot Study to Evaluate the Effectiveness Incorporate Hydrotherapy into Self-Empowerment Program for Patients with Knee Osteoarthritis

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Introduction

Knee osteoarthritis is one of the most common degenerative diseases and causes much disability among the elderly. Hydrotherapy intervention is found effective for those patients as water provides a range of benefit, including the reduction of edema, pain relief and improve the functional status. The hydrotherapy exercise class specifically for knee osteoarthritis patients was started in Sep 2016 in Pok Oi Hospital.

Objectives

To investigate the effectiveness of incorporating hydrotherapy into self-empowerment program for patients with knee osteoarthritis in reducing pain and improving function

Methodology

From Sep 2016 to Jan 2017, patients recruited from the knee osteoarthritis class were self-empowered by physiotherapist on self-care and land based home exercises program. After screening, suitable patients were offered a course of hydrotherapy. The hydrotherapy was incorporated stretching, mobilization and strengthening exercises, neuromuscular and proprioception training.

These exercises are designed with no complicated device is needed so that patients can easily to follow and self-administer in public swimming pool. Pain level (NPRS), functional level (time-up-and-go test, functional reach test, walking speed, step test) as well as the patient's satisfaction and overall subjective improvement were analyzed.

Result

11 patients were recruited. 2 were male and 9 were female. The patients had an average age of 61.1 years old and BMI 27.8 kg/m². In average they received 6 sessions of hydrotherapy. All the outcome measure showed improvement compared

to baseline. The pain level decreased from 6.36 to 4.10 and TUG and walking speed improved from 12.3 second to 10.4 second. The walking speed, functional reach test and 15-second step test all showed improvement from 0.99 ms⁻¹ to 1.1 ms⁻¹, 31.6 cm to 36.5 cm and 10.1 steps to 11.7 steps respectively. All outcome measures except walking speed achieved statistical significance ($p < 0.05$) by Wilcoxon signed ranks test. All patients were satisfied with the knee hydrotherapy treatment. The overall subjective improvement was 40.9%

Conclusion:

Hydrotherapy incorporated into the self-empowerment program was found effective in reducing pain and improving function in short term in this program. Yet the sample size of this study was small and further study could recruit more subjects to increase the power and decrease the bias of the study. Moreover, the long term therapeutic effect and the compliance of the exercise as well as comparison with land based exercise could be further evaluated in the future study.