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Using Knee injury and Osteoarthritis Outcome Score to Measure Effectiveness of Knee Interventions in Facilitating Management Decision

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Introduction

Outcome measures are important to evaluate treatment effectiveness and monitor management programmes. Evaluation of treatment effect across different knee conditions is lacking. The Knee injury and Osteoarthritis Outcome Score (KOOS) is a validated 42-item patient reported outcome with 5 subscales scored separately (0-100 best): Pain, Symptoms, Activities of Daily Living (ADL), Sport and Recreation Function (Sport/Rec) and Knee-related Quality of Life (QoL). The short form of KOOS (KOOS-PS) was derived from the ADL and Sport/Rec subscales to measure change in physical function. Hong Kong Chinese version of KOOS (KOOS-HKC) was validated in 2016.

Objectives

To evaluate the treatment effect on different categories of knee conditions in a physiotherapy clinic using KOOS-HKC, for guiding management decision.

Methodology

It was an observational study. From July to December 2016 in Physiotherapy Department, Prince of Wales Hospital (PWH), all young adult knee patients completed KOOS-HKC before and after physiotherapy treatment while elderly knee patients completed shortened form comprising subscales of Pain, PS and QoL to reduce patient's burden as advised by the developer. Numeric Pain Rating (NPR) (0-10 worst) and Global Rating of Improvement (GRI) (0-10 best) were taken. The disease groups were divided into three categories: 1) knee osteoarthritis (OAK); 2) soft tissue injuries (STI) and 3) fractures/post-operations (#/OP). Demographic data for sex, age and treatment sessions were captured. Descriptive statistics and paired-sample T-test were used for analysis.

Result

Totally 377 patients were recruited, with 253(67%) OAK, 79 (21%) STI and 45 (12%) #/OP problems, attended 5.4, 8.9 and 12.7 sessions respectively. Their mean age was 58 and 63% were female. Significant improvement ($p=0.000$) was observed for all KOOS subscales (mean differences 13.7 to 22.1 points) and KOOS-PS (OAK patients mainly, mean difference 7.8 points). NPR reduced by 2.6 points. GRI was 5.7. Subgroup analysis showed a trend of worse pain, physical functioning and QoL for STI and #/OP categories at pre-treatment but greater improvement was observed afterwards. All outcomes for OAK categories were least improved. The minimal important change for KOOS is 10.9 to 15.3 points. Significant clinical improvement measured by KOOS-HKC after physiotherapy in PWH was observed, more for post-injury or operative conditions while less satisfactory over OAK. This information gives insight to management to explore programme enhancement for OAK for improving outcomes.