ABSTRACT

Objective: To study the effect of additional agility and perturbation exercises and strengthening exercise to improvement balance function and increasing muscles strength of quadriceps and hamstring in patient with knee osteoarthritis.

Design: Randomized pretest and posttest control group design

Setting: Physical Medicine and Rehabilitation Outpatient clinic RSUD Dr. Soetomo Surabaya

Participants: Twenty two patients with knee osteoarthritis (mean age 51.7 years old; range 40 to 65 years old)

Interventions: The subjects were randomly assigned to the intervention group (agility and perturbation exercises plus strengthening exercise of quadriceps and hamstring muscles) and the control group (strengthening exercise of quadriceps and hamstring muscles). Both group participated in a four weeks exercise.

Main outcome measure: Balance function, quadriceps and hamstring muscles strength (BBS, TUG, EN-Tree 1 RM) were assessed before and after intervention.

Result: The intervention and control group improved 1 RM quadriceps muscle ($p=0.0001$) and 1 RM hamstring muscle ($p=0.0001$) but there was no statistically significant difference between group, score of BBS in intervention group improved significant ($p=0.0001$) and statistically increased significant between groups ($p=0.0001$), score of TUG in intervention group improved significant ($p=0.002$) but there was no statistically significant difference between groups ($p=0.324$).

Conclusions: Supplementation of agility and perturbation exercises on strengthening exercise of quadriceps and hamstring to balance function provide additional benefit with respect to the BBS score after four weeks intervention of patients with knee osteoarthritis.

Keyword: knee osteoarthritis-perturbation-muscle strength-BBS-TUG test