Effect of Three Different Physical Therapy Approaches on Function and Disability of the Knee Joint in Patients with Knee Osteoarthritis. Randomized Study.

Tareq F. Alkhudhir, MSc[1], **Ahmed S. A. Youssef** , PT, MSc[1,.3], Ayman A. Mohamed, PT, MSc [2, 3],Shimaa Emara, PT[4] and Min Lu*, MD[1].

[1] Department of Rehabilitation Medicine, Tongji Hospital, Tongji Medical College, Huazhong University of Science and Technology, Wuhan, Hubei, China.

[2] Rehabilitation Engineering Lab, Department of Kinesiology and Community Health, University of Illinois at Urbana-Champaign, Champaign, IL, USA.

[3] Basic science department, Faculty of Physical Therapy, Beni- Suef University, Beni- Suef, Egypt.

[4] General Hospital, Ministry of Health, Giza, Egypt.

* Correspondence Author : prof. Min Lu, MD, Director and corresponding author of research. Department of Rehabilitation Medicine, Tongji Hospital, Tongji Medical College, Huazhong University of Science and Technology, 1095 Jiefang Avenue, Qiaokou District, Wuhan, Hubei, China, 430030. E-mail address: lumin.tj@aliyun.com.

ABSTRACT

BACKGROUND: Knee osteoarthritis (OA) commonly causes increase in the patients' disability and reduce their function because it causes pain, limitation in knee range of motion and decrease in muscle power.

AIM: This study investigated the effect of three different physical therapy programs on knee range of motion , pain level, muscle strength and functional condition in patients with knee OA.

DESIGN: Randomized comparative study.

SETTING: Outpatient Rehabilitation clinic of Tongji Hospital (Wuhan, China).

POPULATION: Seventy-two patients of Knee OA (aged 40-70) enrolled and randomly allocated into three groups. Group A (n=24) received physical agents and isometric quadriceps exercises, group B (n=24) received same physical agents as group A in addition to open kinetic chain exercises and group C (n=24) received physical agents as group A in addition to closed kinetic chain exercises.

METHODS: knee range of motion (by electro goniometer), knee pain level (by VAS), quadriceps muscle strength (by isokinetic dynamometer) and functional condition (by WOMAC) were assessed before and after 5 weeks of treatment.

RESULTS: In between group analysis, there were significant differences ($P<0.05$) between the three groups for all outcome measure. In within-group analysis, group C was the only group that showed significant differences ($P<0.05$) in all the outcomes. Group A and B showed significant differences ($P<0.05$) in quadriceps muscle strength and knee pain and no significant differences ($P>0.05$) in knee ROM and functional condition.

CONCLUSIONS: After the study, our solid conclusion is that in physical therapy programs or protocols, closed kinematic chain exercise is very effective, it improves knee ROM, and help in reducing knee pain, muscle strength, function and disability for patients with knee osteoarthritis.

CLINICAL REHABILITATION IMPACT: Comparison between different physical therapy programs provides the rehabilitation team with the best treatment intervention that is more effective in treating the problems associated with knee osteoarthritis.

Key words: Disability, function, knee osteoarthritis, physical therapy.