Efficacy of class IV diode laser on pain and dysfunction in patients with knee osteoarthritis: a randomized placebo-control trial
Mohamed S. Alayat, Mohamed M. Ali
Departments of 8Basic Science, 9Orthopaedic Physical Therapy, Faculty of Physical Therapy, Cairo University, Cairo, Egypt, 8Department of Physical Therapy, Faculty of Applied Medical Sciences, Umm Al Qura University, Makkah, Saudi Arabia
Correspondence to Mohamed S. Alayat, Ph.D. P.T., Assistant Professor of Physical Therapy, Department of Basic Science, Faculty of Physical Therapy, Cairo University, 7 Ahmed Elziat Street from Eltahrir Street, Cairo, 12522, Egypt; Tel: + 20 100 000 8946; fax: 002-0233809481; e-mail: mohsalahpt@hotmail.com
Received 11 October 2016
Accepted 14 January 2017
Bulletin of Faculty of Physical Therapy 2017, 22:40–45

Objectives
The aim of this study was to investigate the effect of class IV diode laser on knee pain and functions in patients with knee osteoarthritis.

Patients and methods
Fifty patients with a mean±SD age of 55.68±8.88 years, height of 173.84±4.946 cm, weight of 83.86±5.28 kg, and BMI of 27.78±1.89 kg/cm² were randomly assigned equally into two groups (25 patients in each group). Group I received a multiwave locked system laser plus exercises and group II received placebo laser plus exercises three times weekly for 4 weeks. Exercise program was applied for both groups three times weekly for 4 weeks. The exercises included range of motion, stretching, isometric, and isotonic resisted exercises to the quadriceps and hamstring muscles. Pain was evaluated using a visual analog scale and knee function by using the Western Ontario and McMaster Universities Index of Osteoarthritis (WOMAC). Statistical analyses were performed to compare differences between baseline and post-treatment results for both groups.

Results
Visual analog scale and WOMAC were significantly decreased in both groups after 4 weeks of treatment, with a more significant decrease gained in group I (P>0.0001).

Conclusion
Class IV diode laser combined with exercise was more effective than exercise alone in the treatment of patients with knee osteoarthritis. Multiwave locked system laser combined with exercise effectively decreased pain and WOMAC as compared with the placebo laser plus exercises group.

Keywords: class IV laser, knee function, knee osteoarthritis, multiwave locked system, pain

This is an open access article distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 3.0 License, which allows others to remix, tweak, and build upon the work noncommercially, as long as the author is credited and the new creations are licensed under the identical terms.