

**ABSTRACT****THE EFFECT OF LASER ACUPUNCTURE COMPARED TO  
TRANSCUTANEOUS ELECTRICAL NERVE STIMULATION (TENS) ON  
KNEE OSTEOARTHRITIS PATIENTS IN AIRLANGGA UNIVERSITY  
HOSPITAL**

Osteoarthritis (OA) is the most prevalent chronic joint disease, affecting 30-50% of adults over 65 years. TENS and laser acupuncture are the optional treatment for knee OA patient. Laser acupuncture is a new treatment, which is a modification of laser therapy. Research for a new modified modality for OA patient is needed for medical professional to choose the therapy for knee osteoarthritis patient. The goal of this study is to compare the effectiveness of laser acupuncture with TENS on Visual Analogue Scale (VAS), Time Up and Go (TUG), and Flexion Range of Movement (ROM) of knee OA patients in Airlangga University Hospital.

This study was conducted with a quasi-experimental research design to compare the effectiveness between laser acupuncture group with TENS group in Airlangga University Hospital. The evaluation data of resting VAS, walking VAS, flexion ROM, and TUG differences were taken before and immediately after treatment for each group. There were 30 subjects included in this research, divided into 15 subjects for laser acupuncture group and 15 subjects for TENS group. Comparative analysis between laser acupuncture with TENS group showed significant improvement of resting VAS (mean difference:1.33,  $p<0.005$ ), flexion ROM (mean difference: 6.34,  $p<0.001$ ), and TUG (mean difference: 2.406,  $p<0.001$ ), while there was no significant difference for walking VAS (mean difference: 1.07,  $p=0.06$ ) between two groups.

This study concludes that laser acupuncture was effective on improving the condition of knee OA patient compared to TENS based on resting VAS, flexion ROM, and TUG. Advanced study is needed to explain the mechanism on biomolecular level.

**Keywords:** laser acupuncture, transcutaneous electric nerve stimulation, knee osteoarthritis, VAS on resting, VAS on walking, flexion ROM, TUG