EFFECTS OF LOW-INTENSITY PULSED ULTRASOUND AS AN ADJUNCT TO CONVENTIONAL PHYSIOTHERAPY ON POST-OPERATIVE PAIN AND FUNCTIONAL ABILITY OF TOTAL KNEE ARTHROPLASTY PATIENTS

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Introduction: Low-intensity pulsed ultrasound as an adjunct treatment modality for acute management has shown beneficial for recovery of inflammation and joint function of patients after total knee arthroplasty (TKA). However, there is limited documentation on the effects of combining low-intensity pulsed ultrasound in TKA rehabilitation. This study aimed to determine the effect of low-intensity pulsed ultrasound as an adjunct to conventional physiotherapy on the recovery of post-operative pain and functional ability after TKA.

Methodology: This assessor-blinded quasi-experimental study was conducted among TKA patients at a university medical center. Participants were alternately allocated to receive either low-intensity pulsed ultrasound-added conventional physiotherapy (n = 16, experimental group) or conventional physiotherapy alone (n = 16, control group). The intervention was conducted for 12 weeks (4 times for the first week post-TKA, once a week for the following 2 weeks, and once in every two weeks for another 9 weeks). The low-intensity pulsed ultrasound in the experimental group was conducted at the first 3 weeks of post-operation. Visual analogue scale and Lower Extremity Functional Scale were used to assess pain and functional ability respectively: at post-operative day 2 (baseline assessment for pain and functional ability), week 4 of intervention (to assess pain) and week 12 of intervention (to assess functional ability). Collected data was analyzed using mixed model ANOVA.

Discussion: The study showed a significant interaction between time and group for pain ($p < 0.05$, $^2 = 0.14$). The participants' pain after low-intensity pulsed ultrasound-added conventional physiotherapy (mean SD = 1.64 1.40) reduced lower than the pain in participants after conventional physiotherapy alone (mean SD = 3.40 1.50) at week 4 of intervention. However, there was no significant interaction time-group for functional ability ($p > 0.05$, $^2 = 0.11$).

Conclusion: Integration of low-intensity pulsed ultrasound and conventional physiotherapy provides better effect in pain alleviation following TKA.