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Effects of Low Level Laser Therapy on Wound Healing in Obese Abdominal Surgery

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Abstract

Introduction: obesity is defined as excess adipose fat in the body. (ad-mscs) are a type of mesenchymal cells, present in adipose tissue which is responsible for wound healing and regeneration by replacing dermal compartments. the adsc is affected by obesity.

Methods: this study is a randomized control trial (rct) with a sample size of 30, experimental (n=15) and control (n=15). the participants are collected from sri ramachandra hospital, chennai, tamil nadu. both the groups were recruited on the basis of inclusion and exclusion criteria and measured for their baseline data, vas (for pain) and photographs of surgical scar on day 1 and at the day of discharge which were assessed for surgical scar closure using autocad2024. the experimental group received low level laser therapy at wavelength of 655nm and power of 3w/cm2 from postoperative day 1 till the day of discharge, three sessions, on every alternate day.

Results: the collected data was tabulated and analyzed using jasp software. demographic data such as age, gender and bmi were calculated and their mean and standard deviation were computed. comparison between groups were done for outcome measures on session one of laser therapy and at the time of discharge were done using paired t-test. the result showed statistically significant changes in surgical scar closure (p value- 0.002) in experimental group but no statistical significance in the control group (p value- 0.239). the result also showed statistical significance in vas of experimental group (p value- <0.001) and in control group (p value- 0.002).

Conclusion: the result shows that although both the groups have mild pain at the time of discharge, the experimental group had further reduction in pain than the control group. furthermore, surgical scar reduction is evident in the experimental group but not in the control group.