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Role of Cold Laser as an Alternative Tool to Bariatric Surgeries in Modifying Sirtuin1 Gene Expression in Obese Down Syndrome Patients

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Abstract:Purpose: the current study was conducted to investigate the effect of cold laser as alternative tools to bariatric surgery on modifying SIRT1 gene expression in obese Down syndrome patients. **Methods:** Forty obese Down syndrome patients were included in current study. Their IQ level was greater than 60. Their age were ranged from 14 to 18 years old, their body mass index (BMI) was ranged from 30kg/m2 to 39,9 kg/m^2, These patients were divided randomly and equally into two groups G1 composed of twenty obese patients with down syndrome. They were exposed to cold laser on abdominal adipose tissue two times/ week for 3 months plus indoor ergonomic exercise two times / week for 3 months plus balanced diet and G2 composed of twenty obese patients with Down syndrome. They were received indoor ergonomic exercise two times/ weeks for three months plus balanced diet, **Methods**: data were obtained for each patient from BMI, abdominal circumference, skinfold and SIRT1 level. Measurements were performed before study (pre-test) and after three months (post-test). **Results:** statistical analysis revealed that there was reduction of BMI, waist circumference and skin fold and fold change within both groups after treatment in compare to pretreatment ($p<0.05$). Also there was a significant reduction in skin fold in group I compared with group II) $P<0.05$). In spite of there was no significant difference in the BMI, waist circumference, and fold change between both groups) $P>0.05$) after treatment. As regards , in post treatment there was a clinical difference of BMI in favor to G2 (11.69%) compared to G1 (6.93) and waist circumference in G1 (18.29) compared with G2 (11%), As regards the fold change was favor in G2 (40%) while it was 27.27% in G1. **Conclusion:** Clod laser and exercises with balanced diet has a significant effect in reduction BMI and skin fold. As regards more favor effect of cold laser in waist circumference reduction, than exercises. Fold change as indicator for sirtuin1 gene expression was changed in G2 and G1 respectively (40%, 27.27%). These indicated that BMI reduced with exercises, cold laser respectively which may be an effective tool in modifying Gen expression in Down syndrome obese patients.
Key word: Obesity- Down syndrome- Bariatric surgery- Sirtain I- cold laser.

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