

Synergistic Effect of Linoleic Acid and L-Carnitine in HFD Diet Induced Obesity in Rats

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SUMMARY. The aim was to evaluate the combined effects of Conjugated Linoleic Acid (CLA) and L-carnitine (LC) on weight gain in diet induced obesity in rats. Forty male *wistar* rats were randomly divided into two groups: Normal chow diet (n = 8), and High fat diet (HFD) (n = 32). After eight weeks, the second group maintained HFD and was subdivided into 4 categories: Corn Oil group, 500 mg conjugated linoleic acid (CLA), 200 mg L-carnitine (LC), and 500 mg CLA+ 200 mg LC (all doses were calculated per kg of body weight), which were administered by oral gavage for four weeks. Body weights were measured and recorded weekly by means of a digital weighing machine. SPSS Version 16 was used for statistical analysis. At the end of eighth week, a significant difference in weight was observed between HFD (295.43 ± 2.36 gm) and NCD (206.38 ± 3.48 gm) group. After four weeks, LC significantly reduced weight gain by 7.5% (p = 0.047). Trend of weight gain in CLA and LC + CLA groups were decelerated (24 and 25 g, respectively), but it was statistically insignificant (p = 0.08, 0.12 respectively). Findings of this experimental study showed that a high fat diet led to obesity and when LC and CLA given combined it leads to decrease in weight gain caused by HFD. However, needs further work to validate reliability in human.

RESUMEN. El objetivo fue evaluar los efectos combinados del ácido linoleico conjugado (CLA) y la L-carnitina (LC) sobre el aumento de peso en la obesidad inducida por la dieta en ratas. Cuarenta ratas *wistar* macho se dividieron aleatoriamente en dos grupos: dieta de comida normal (n = 8) y dieta alta en grasas (HFD) (n = 32). Después de ocho semanas, el segundo grupo mantuvo HFD y se subdividió en 4 categorías: grupo de aceite de maíz, 500 mg de ácido linoleico conjugado (CLA), 200 mg de L-carnitina (LC) y 500 mg CLA+ 200 mg LC (todas las dosis se calcularon por kg de peso corporal), que se administraron por sonda oral durante cuatro semanas. Los pesos corporales se midieron y registraron semanalmente por medio de una báscula digital. Se utilizó SPSS Versión 16 para el análisis estadístico. Al final de la octava semana, se observó una diferencia significativa en el peso entre el grupo HFD (295,43 ± 2,36 g) y NCD (206,38 ± 3,48 g). Después de cuatro semanas, LC redujo significativamente el aumento de peso en un 7,5 % (p = 0,047). La tendencia de aumento de peso en los grupos CLA y LC + CLA se desaceleró (24 y 25 g, respectivamente), pero fue estadísticamente insignificante (p = 0,08, 0,12 respectivamente). Los hallazgos de este estudio experimental mostraron que una dieta alta en grasas conduce a la obesidad y cuando se combinan LC y CLA conduce a una disminución en el aumento de peso causado por HFD. Sin embargo, necesita más trabajo para validar la confiabilidad en humanos.

KEY WORDS: conjugated linoleic acid, high fat diet, L-carnitine, obesity

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