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Metabolic and Anti-Inflammatory effects of Oleanolic Acid in Obese Subjects

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Introduction: Obesity is a risk factor for the development of insulin resistance. In addition, different studies indicate that obesity is an inflammatory disorder; however, the mechanisms that link inflammation with obesity remain unclear. The objective of this study was to investigate the metabolic and anti-inflammatory properties of Oleanolic Acid (OA) in obese subjects.

Methods: A systematic review was performed following PRISMA recommendations. The Medline and Web of Science databases were consulted, considering articles published in English in the last five years (2012-2017). We used the search equations: “Oleanolic acid” AND “Obesity”, “Oleanolic acid” AND “Metabolic syndrome”, and “Oleanolic acid” AND “Insulin resistance”, obtaining a total of 193 results, of which 28 articles were selected.

Results: In animal models, administration of OA produced an improvement in blood lipid levels, reducing the concentration of free fatty acids and increasing levels of HDL-cholesterol. Also, it has been reported a significant reduction of the surface area of adipocytes. A serum decrease of Interleukin-6 and tumor necrosis factor alpha was found. In studies with 3T3-L1 cells, a decrease in leptin levels, a suppression in resistin synthesis, and increased secretion of adiponectin were observed.

Conclusions: OA improves the lipid profile in obese subjects, particularly reducing the serum concentrations of free fatty acids. Its modulatory capacity on signaling molecules and pathways reduces subclinical inflammation associated with obesity. However, broader studies are needed in this field, especially in humans.

Biography:

Ángel Fernández-Aparicio is researcher at Granada University, Granada, Spain. Recently, she finished her nursing studies in 2015, and in this year she is going to start a master entitled “Health Care for the Promotion of the People’s Autonomy and the Attention to the Processes of the End of Life”.