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CHARACTERIZATION OF IMMUNE CELLS IN THE ADIPOSE TISSUE OF OBESE MICE TREATED WITH ANTI-OBESITY THERAPIES

G.P. Lombardo[1], A. Nunnari[1], A. Miller[2], M. Kotańska[3], S. Fiorentino[1], E.R. Lauriano[1]

[1]Department of Chemical, Biological, Pharmaceutical, and Environmental Sciences, University of Messina, Italy; [2]Department for the Promotion of Human Sciences and Quality of Life, San Raffaele University, Rome, Italy; [3]Department of Pharmacodynamics, Jagiellonian University, Medical College, Medyczna 9, Krakow, Poland

Obesity is a chronic metabolic disease characterized by excessive fat accumulation and a state of low-grade inflammation, which increases the risk of multiple comorbidities, including cardiovascular diseases, type 2 diabetes, and hepatic steatosis [1-3]. White adipose tissue is a complex organ composed not only of adipocytes but also of several other cell types, including endothelial, immune, and mesenchymal cells. In this preliminary study, we compared immune cell expression among control mice, obese mice, and obese mice treated with bupropion/naltrexone (a well-established therapy with known metabolic and anti-inflammatory effects) or JP-14, a novel compound with potential activity against metabolic disorders6. In particular, we characterized immune cells in adipose tissue using the following markers: TLR-4, MCP-1, TNF-α, and Resistin. Our results showed that treatment with bupropion and naltrexone exerted beneficial effects in obese mice, reducing immune cell infiltration in adipose tissue and improving tissue morphology, as evidenced by a marked decrease in marker-positive cells compared to untreated obese mice. Similarly, JP-14 treatment reduced immune cell infiltration and promoted adipocyte browning, with a significant reduction in marker-positive immune cells compared to obese controls. In conclusion, given the growing global burden of obesity and its strong association with chronic inflammation and metabolic diseases, these findings highlight the importance of identifying effective therapeutic strategies targeting adipose tissue remodeling.

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