

A Myristic acid enriched cream improves the metabolic syndrome and increases membrane fluidity: The Semyramis study

H. Dabadie, E. Peuchant, C. Motta, D. Ribaud, C. Lopez and F. Mendy
University of Bordeaux, France

Objective: To evaluate a myristic acid (MA) enriched cream in obese patients without or with the metabolic syndrome (MS).

Procedure: One hundred and twenty obese subjects (mean BMI: 37.2) were enrolled in a 3-month double blind trial. Half of them had a MS. They were randomized to consume each day a MA enriched cream in an hypocaloric diet with MA intake of 3.0, 3.5 or 4.0 g/d. MA/stearic ratios were around 1.5. Intakes of other fatty acids were at recommended levels, mainly for alpha-linolenic acid (2 g/d) with a linoleic/alpha-linolenic ratio at 3/1.

Results: In comparison with baseline, 3-month interventional diet was associated with an increase of MA and pentadecanoic acid (C15) in cholesteryl esters in all groups suggesting a good compliance for cream consumption. Reduction of weight (-7.0 kg) and waist (-8.0 cm) were more important in the MS. Glycemia, insulinemia, HOMA ratio and triglycerides were decreased in the MS and HDL-C was only increased with MA intake of 4.0 g/d. Leptin was decreased in all subjects mainly in the MS and adiponectin was increased mainly with MA intake of 3.0 g/d in the MS. Oxidized LDL were decreased with 3.0 g/d MA intake and increased with 4.0 g/d. Membrane fluidity was dramatically increased only with MA intake of 3.0 g/d.

Conclusion: Influence of MA on parameters of the MS appears as a U-shaped curve with the more favourable effects for 3.0 g/d. A MA enriched cream with a total daily MA intake of 3.0 g significantly improves the MS, reduces leptin, increases adiponectin and membrane fluidity.