Type 2 Diabetes Patients with Metabolic Syndrome

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Description

Metabolic syndrome (MS) has been on the rise for the past two decades and is now approaching pandemic proportions worldwide. Type 2 diabetes, insulin resistance, abdominal obesity, hypertension, and hyperlipidemia are all symptoms of the Metabolic Syndrome. Because of the significant mortality and morbidity associated with metabolic syndrome, it is critical to prevent or manage these disorders. Stopping the evolution of metabolic syndrome and treating it often requires lifestyle modifications such as adequate exercise and a well-balanced diet. Nonetheless, much of the research shows that changing one's lifestyle permanently and maintaining weight loss for a long time is challenging [1,2].

Considering this glucose absorption directly governs pancreatic insulin release, the reduced pancreatic insulin response is most likely related to decreased glucose absorption rates. Metformin is the most commonly prescribed first-step hypoglycemic oral drug for T2DM, and it is frequently used off-label to prevent insulin resistance, including obesity. When compared to Metformin alone, Metformin + PGR treatment resulted in a greater reduction in BMI, HbA1c, and HOMA-IR index, as well as Matsuda disposition and insulinogenic indices in children and adolescents with MS. In people with MS, we recently found that PGR and Metformin had similar glucometabolic results and that PGR had a superior lipid profile than Metformin. The gastrointestinal side effects trial, on the other hand, aimed to confirm PGR's short-term efficacy and safety under real-world situations in order to provide acceptable responses to the need for optimal MS management. To do so, we looked at 6-month changes in metabolically important parameters in MS and T2DM patients, as well as the 10-year CV risk score (10-y-CV-RS) from the Italian CUORE equation, which fits the study population better than others based on eating habits, lifestyles, and CV mortality rates [3].

Weight loss through an energy-restricted diet combined with increased energy expenditure from physical activity can help prevent and treat MS. With or without energy restriction, a Mediterranean-style diet is an effective therapeutic component. This eating plan should include more unsaturated fat, particularly from olive oil, as well as legumes, cereals (whole grains), fruits, vegetables, nuts, fish, and low-fat dairy products, as well as moderate alcohol use. Other dietary patterns (hypertension-prevention diets, new Nordic diets, and vegetarian diets) have also been recommended as alternatives to obesity prevention. Sugar-sweetened beverages and meat items must be consumed in moderation. Nonetheless, there are discrepancies and gaps in the evidence, necessitating more research to determine the best treatments for MS. To summarise, maintaining a healthy lifestyle is crucial for preventing or delaying the onset of MS in susceptible individuals, as well as preventing weight gain, cardiovascular disease, and type 2 diabetes that can arise with MS. Several guidelines should aid patients and physicians in comprehending and implementing the most effective lifestyle adjustments for preventing MS and enhancing cardiometabolic health. As a result, there are numerous diets that can assist in reducing the appearance or progression of symptoms. One of these promising diets is the ketogenic diet (KD), which has a vast body of research demonstrating its benefits in reducing or preventing the symptoms of obesity and its comorbidities [4,5].

In the European population, MS is linked to an elevated risk of incident cardiovascular illness and mortality. In clinical practise, the number of individual risk variables implicated might lead to a more informed assessment. Because of the many diagnostic criteria, target populations, and clinical contexts, its prevalence is still debatable. MS was found in 1456 (33.0%) of 4513 outpatients in a study from Middle Italy GP databases, according to the Adult Treatment Panel (ATP) III criterion. There is no universal treatment for MS, especially when it is linked with T2DM, because diverse risk factors that characterise each individual's clinical picture must be treated individually. Many tactics have been utilised thus far around the world, involving various inorganic/organic/pharmaceutical agents. Zinc complexes with garlic derivatives as insulin mimics; selenium as an antioxidant; and copper, zinc, and manganese as micro components of antioxidant enzymes are among the inorganic ones. In sucrose-fed rats, an organic compound called glycine has been shown to reduce high blood pressure, hypertriglyceridemia, lipid oxidation, and visceral fat accumulation. Fibres, lipid- and glucose-lowering medications, anti-gout treatments, antioxidants, and omega-3-oils are all common medicinal products (fish oils). Finally, despite being less efficient than medicines, digitalis pupurea (a century-old cardiovascular treatment), magnolia officinalis, spirulina maxima, prickly pear cactus (Opuntia), ficus-indica, and cochlospermum vitifolium are all commonly used antioxidant and lipid-lowering plant derivatives.

Conflicts of Interest

The authors declare no conflict of interest.

References

1. Bianchi, Cristina, Giuseppe Penno, Fabiola Romero, and Stefano Del Prato, et al. "Treating the metabolic syndrome." *Expert Rev Cardiovasc Ther* 5 (2007): 491-506.

2. Gogia, Atul, and P.K. Agarwal. "Metabolic syndrome." *Indian J Med Sci* 60(2006): 72-81

3. Giampaoli, Simona, Luigi Palmieri, Chiara Donfrancesco, Cinzia Lo Noce, et al. "Cardiovascular health in Italy. Ten-year surveillance of cardiovascular diseases and risk factors: Osservatorio Epidemiologico Cardiovascolare/Health Examination Survey 1998–2012." *Eur J Prev Cardiol* 22 (2015): 9-37.

4. Giampaoli, Simona, Luigi Palmieri, Salvatore Panico, and Diego Vanuzzo, et al. "Favorable cardiovascular risk profile (low risk) and 10-year stroke incidence in women and men: Findings from 12 Italian population samples." *Am J Epidemiol* 163 (2006): 893-902.

5. Poulsen, Sanne K., Anette Due, Andreas B. Jordy, Bente Kiens, et al. "Health effect of the new nordic diet in adults with increased waist circumference: A 6-mo randomized controlled trial." *Am J Clin Nutr* 99 (2014): 35-45.

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