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Extended Abstract

The effects of upgrade Baduanjin on glucose metabolism and mental health in patients with type 2 diabetes: a randomized controlled trial.

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Abstract

Menopause is often associated with a central accumulation of body fat. This provokes insulin resistance. The resulting hyperinsulinemia may increase the risk of diabetes, cardiovascular disease and breast cancer. Long-term studies indicate that menopausal hormone therapy (MHT) reduces insulin resistance. To broaden knowledge of the mechanisms behind the influence of MHT on glucose homeostasis we focused on the direct short-term effects of MHT with oral combined estradiol and drospirenone on glucose and insulin metabolism in healthy postmenopausal women. Women with the metabolic syndrome (central obesity, insulin resistance, and dyslipidemia) are known to be at especially high risk for cardiovascular disease (CVD). The prevalence of the metabolic syndrome increases with menopause and may partially explain the apparent acceleration in CVD after menopause. The transition from pre- to postmenopause is associated with the emergence of many features of the metabolic syndrome, including 1) increased central (intraabdominal) body fat; 2) a shift toward a more atherogenic lipid profile, with increased low density lipoprotein and triglycerides levels, reduced high density lipoprotein, and small, dense low density lipoprotein particles; 3) and increased glucose and insulin levels. The emergence of these risk factors may be a direct result of ovarian failure or, alternatively, an indirect result of the metabolic consequences of central fat redistribution with estrogen deficiency. It is unclear whether the transition to menopause increases CVD risk in all women or only those who develop features of the metabolic syndrome. This article will review the features of the metabolic syndrome that emerge with estrogen deficiency. A better understanding of these metabolic changes with menopause will aid in the recognition and treatment of women at risk for future CVD, leading to appropriate interventions.

Methods: This randomized, placebo-controlled study recruited 80 healthy postmenopausal women. Women were randomized to treatment with estradiol 1 mg continuously combined with drospirenone 2 mg or placebo for 6–8 weeks. All participants underwent an oral glucose tolerance test (OGTT) before and after the treatment period.

Glucose, insulin, fructosamine and C-peptide levels were measured in serum before and 30, 60, 90, 120 and 150 min after a 75-gram oral glucose challenge.

Results: After intervention, significantly higher glucose levels at 120 min ($p < 0.024$) and 150 min ($p < 0.030$) were observed in the MHT group compared with the placebo group. These glucose levels remained within the normal range.
A significantly lower insulin peak serum level ($p < 0.040$) and a non-significantly smaller area under the curve (AUC) for insulin levels ($p = 0.192$) was observed in the MHT group at the end of the study period relative to baseline. No significant change in the insulin AUC in the placebo group was observed. There were no significant differences in fructosamine, HOMA-IR and C-peptide levels between the MHT group and the placebo group.
Conclusion: This double-blind randomized study (EC/2008/694) indicates that treating healthy, postmenopausal women with 1 mg estradiol continuously combined with 2 mg drospirenone significantly decreases peak insulin levels and increases peak glucose levels during an OGTT compared to placebo. These glucose levels remained within the normal range

Keywords: Menopause, Insulin metabolism, Hormonal treatment

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