

Type-2 Diabetes Drug Ineffective for Obese, Type-1 Teens



By Lila Abassi — December 1, 2015



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Metformin has been the first-line drug of choice in the treatment of Type 2 diabetes and its the most widely prescribed oral agent to suppress glucose levels in the blood.

It has three main important functions. First, it blocks the liver from producing glucose (gluconeogenesis); second, it sensitizes tissues to insulin allowing for improved glucose absorption; and third; it decreases the absorption of glucose from the gut. This medication, which has been on the market since 1995, is not used to treat Type 1 diabetes (T1DM).

A study published in *JAMA* [2] recently examined the question of whether metformin could assist overweight or obese adolescents with T1DM in improving blood sugar levels if added to an insulin regimen. It is a well-documented phenomenon [3] that adolescents with and without diabetes have higher levels of insulin resistance. Previous studies have suggested that adding metformin to insulin therapy may improve HbA1c levels (average blood glucose level over the span of several months) in teens with diabetes.

Overweight or obese teens are at an increased disadvantage as fat tissue, in and of itself, promotes insulin resistance [4]. Administration of high doses of insulin to establish adequate blood glucose levels contributes to further weight gain. The researchers in the study randomly assigned 140 adolescents, ages 12-19 years with T1DM to receive metformin or placebo, over an average span of seven years. At 26 weeks, there were no statistically-significant differences between the two groups.

The participants in the metformin group did, however, show reductions in weight gain, body fat and total daily insulin dose, how that translates clinically is not known. The treatment arm did not demonstrate improvements in blood pressure or lipid profile (cholesterol and triglyceride levels),

which are risk factors for cardiovascular disease.

The authors of the study soundly concluded, These results do not support prescribing metformin to adolescents to improve glycemic control.

T1DM is one of the most common chronic diseases of childhood caused by an autoimmune condition where the insulin producing cells of the pancreas (beta cells) are destroyed. The classic presentation of a previously undiagnosed child is when the child excessively urinates (polyuria), is excessively thirsty (polydipsia), has inexplicable weight loss and possible blurring of vision. The most dangerous presentation is known as diabetic ketoacidosis (DKA), which can include a fruity odor to the breath and neurological findings such as lethargy or drowsiness.

Diagnosing diabetes can be devastating whether the person is an adult or a child/adolescent. It requires a complete lifestyle change, but it is not impossible to live a full and healthy life. In a population that is undergoing significant hormonal and behavioral changes, the dialogue may not be so easy. It is imperative that adolescents that are overweight or obese receive extra care and guidance from their healthcare team to lose weight and improve their cardiovascular status.

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