The effects of metformin on insulin resistance in overweight or obese children and adolescents: A PRISMA-compliant systematic review and meta-analysis of randomized controlled trials

The global prevalence of obesity rose from 4% to 18% between 1975 to 2016, with around 124 million children and adolescents affected. Previous studies looked at intensive lifestyle modification and concluded that it could increase weight loss, improve insulin sensitivity and reduce the risk of developing type 2 diabetes but also flags the potential inefficiency of this single-strategy lifestyle intervention. Metformin, an oral antihyperglycemic agent, has proved to be effective for obesity among children and adolescents who didn’t respond to simple lifestyle intervention. The present meta-analysis “investigated the efficacy and safety of metformin in improving insulin resistance in overweight or obese children and adolescents, to provide a scientific basis for the application of future clinical evidence.”

A total of 11 articles were found to be eligible and were included in this review. Overall, the review found that metformin was “effective in reducing the levels of fasting glucose when the duration was less than 6 months.” However, “once the duration of the intervention was greater than or equal to 6 months, this effect would no longer be significant.” The review also highlights some of the common side effects including abdominal pain, diarrhoea, nausea and vomiting.