ABSTRACT

Background & objectives:

Lycopene a caratenoid mostly found in tomatoes and tomato products. Scientific publications revealed that lycopene has antidiabetic activity. But the influence of lycopene on diabetic patients who are under treatment is not clear. Hence, the present study is planned to find out theinfluence of lycopene alone and also on antidiabetic effect ofGlipizide and Metformin combination in diabetic animals.

Materials and methods:

The effect of lycopene was evaluated on alloxan (110 mg/kg, s.c) induced diabetic models by estimating serum glucose, cholesterol, HDL cholesterol, SGOT, SGPT, protein levels,liver glycogen and liver glucose 6 phosphatase levels and compared with diabetic control. Male albino rats were used and divided into 12 groups each group consists of 6 rats.1st and 2nd groups served as normal and diabetic control. 3rdand 4thgroup received glipizide and Metformin. 5th and 8th groups treated with lycopene 4 and 2 mg/kg. 6thand 9thgroup treated with lycopene 4 and 2 mg/kg with glipizide. 7thand 10thgroup treated with lycopene 4 and 2 mg/kg with Metformin combination. 11thand 12th group treated with lycopene 2 and 4 mg/kg,glipizide and metformin respectively.

Results:

Lycopene both 2, 4 mg/kg showed very significant antidiabetic activity on the 14th day of treatment and blood glucose levels came to normal on 21st day of treatment. Lycopene in combination with Glipizide or Metformin and combination

with both have not shown the anti-diabetic effect till 7th day of treatment. The combination showed very significant antidiabetic effect on 14th day and the blood glucose level brought to normal on 21st day of the treatment.The inhibition of anti-diabetic effect of Glipizide and Metformin is due to pharmacodynamic or pharmacokinetic interactions yet to be revealed. Lycopene both 2, 4 mg/kg alone and combination with Glipizide and Metformin decreased the serum cholesterol levels, SGOT, SGPT, glucose-6-phosphatase and increased the HDL, total protein, and liver glycogen levels when compared with diabetic control group.

Conclusion:

The lycopene has anti-diabetic action in alloxan induced diabetic rats. Lycopene in combination with glipizide or metformin and combination with both glipizide and metformin showed very significant anti-diabetic effect on 14th day and the blood glucose level brought to normal level on 21st day of treatment. Inhibition of anti-diabetic effect of Glipizide and Metformin observed in combination with lycopene.

Key words: Lycopene, alloxan, diabetes, serum glucose.