

EFFECT OF YASHADA BHASMA IN STREPTOZOTOCIN-INDUCED DIABETES

V.NAGESWARA RAO, P.SURESH, S.K. DIXIT AND K.D GODE*

Department of Rasashastra and department of Pharmacology *, Institute of medical sciences, Banaras Hindu University, Varanasi – 221 005

Received: 11 March, 1997

Accepted: 2 August, 1997

ABSTRACT: *An experimental study was conducted to evaluate the effect of yashada bhasma in streptozotocin induced diabetes in albino rats. All the details are presented in this study.*

INTRODUCTION

Diabetes is a metabolic disorder, for which curable therapy is yet to be discovered. Though there are various drugs mentioned in modern medicine for the symptomatic relief, the chances of their toxicity are very high. In ayurveda, a number of metals are mentioned specially for the treatment of diabetes and its complication, Based on the literary survey, we have selected *yashada bhasma* to evaluate its effect in diabetes. *Madanapala nighantu* (14th A.D) seems to be the first book to mention *yashada* (zinc) alongwith its antidiabetic property.

Materials and Methods

The drugs (*yashada bhasma*) was prepared in the department of Rasa Shasta, IMS BHU and this contains mainly zinc in higher amount. For the present experimental study we took fifteen albino rats (both sexes), weighing around 110-180 gms. And kept in our departmental animal house for proper acclimatisation for 10 days and the blood sugar levels are estimated by folin and Wu method. The blood was collected by

puncturing external orbital venous plexus. We have chosen the estimation of blood sugar levels as a parameter to assess the effect of *Yashada bhasma*. Later all the animals were kept overnight fast and the diabetes was induced in albino rats by injecting 65 mg/kg body weight of streptozotocin I.P in sodium citrate buffer, after fortyeight hours the blood was drawn and estimated for sugar content (Table I) The animals having blood sugar more than 250 mg% were taken for the study. The total animals that become diabetic were divided into 3 groups i.e control, drug treated and rastinon treated group. Control group was given distilled water. The drug (*Yashada Bhasma*) was given for one month in aqueous suspension through oral route in the dose of 0.5g/kg body weight and at weekly intervals the blood sugar levels were recorded. The effect of *Yashada bhasma* was evaluated against streptozotocin and compared with that of known short acting first generic drug i.e Rastinon (tolbutamide), in this experiment. All results are shown in Table I.

Table I

The effect of yashada bhasma on the blood sugar levels in streptozotocin induced diabetic albino rats. Data presented Blood Sugar Mean \pm S.E. (mg%) values. Number in parenthesis indicate number of observations.

GROUPS	NORMAL	AFTER 48 HOURS OF INDUCTION	MEAN \pm S.E. (Mg%) BLOOD SUGAR LEVELS AFTER			
			1 st Week	2 nd Week	3 rd Week	4 th Week
Control	120.07 \pm 2.23 (15)	336.8 \pm 12.31 (5)	388.8 \pm 28.34 (5)	381.6 \pm 30.65 (5)	391.6 \pm 32.99 (5)	391.3 \pm 43.73 (3)
Drug Treated		358.57 \pm 19.78 (7)	340.29 \pm 25.39 (7)	300.6 \pm 24.35 (7)	261.14 \pm 24.35 (7)	175.71 \pm 20.72 (7)
Rastinon treated		348.67 \pm 38.44 (3)	394.0 \pm 26.02 (3)	270.67 \pm 31.88 (3)	238.0 \pm 25.01 (3)	150.0 \pm 16.37 (3)

Results

From the Table I, it is very clear that all rats became diabetic (100%). In control group the blood sugar levels remained elevated throughout the study, whereas the levels returned to near normal by the end of the treatment in treated levels, In rastinon treated group also the blood sugar levels returned to near normal levels, In control group two (2) animals died in the last week (40%) No mortality was observed in both treated and rastinon treated groups.

Discussion

Okamoto (1943) demonstrated the presence of zinc in islets of pancrease, Kadota (1950) suggested that the damaged to the islets

related to chelation and removal of zinc, which is known to be present in large amounts in the cells, mirsky (1953) and mirsky et al. (1956) claimed that heavy metals such as copper, zinc in vitro acted as insulinase inhibitors, the islets of humans are found to contain zinc, Insulin possess a specific and strong ability to form chelate complexes with zinc.

So be the above facts it may be concluded that the reason for the significant fall in blood sugar levels may be the presence of zinc in yashada bhasma. So yashada bhasma may be used in clinical practice to control diabetes effectively.

References

1. Madanapala, "Madanapala nighantu" Laxmi Venkateswara Press, Bombay, 1901.
2. "Experimental diabetes and its relation to clinical disease symposium" Blackwell scientific Oxford 1954.
3. V.K. Malhotra, "Practical biochemistry for students" J.P Brothers, New Delhi, 1989.
4. P. Suresh, "Antidiabetic actions of some rasa preparations" – Ph.D Thesis, Deptt. Of Rasa Shastra, IMS, BHU, Varanasi, 1990.