

EFFECT OF SPIRONOLACTONE ON CARDIOVASCULAR COMPLICATIONS ASSOCIATED WITH TYPE-2 DIABETES IN RATS

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Diabetes and Hypertension

- *Hypertension – 20-60% of patients with DM.¹
- *Along with central obesity and dyslipidemia, hypertension is a part of metabolic syndrome of insulin resistance in type 2 diabetes.²
- *Hypertension results in four to five fold increase in mortality in type 2 diabetic patients.³
- *Diabetic cardiomyopathy - unique feature which contributes significantly to morbidity and mortality.



Hypertension Control in Diabetics

- *Approximately 35-75% of diabetic complications can be attributed to hypertension.⁴
- *More aggressive treatment in persons with coexistent diabetes and hypertension
- *Controlling BP in diabetics is more beneficial as far as progression of diabetic complications are concerned.



SPIRONOLACTONE

- Mineralocorticoid receptor antagonist
- Increases diastolic calcium concentration and myosin ATPase calcium sensitivity and thereby produces positive inotropic actions in rat heart.⁵
- Reduces the stiffness of carotid artery and prevents artery remodelling.⁶
- RALES study, randomised, double-blind trial involving 1,663 patients which depicted the beneficial effects of spironolactone in patients with CHF.⁷
- Previously we have reported the beneficial role of spironolactone on cardiovascular complications in type 1 diabetes.⁸

OBJECTIVE

- *Evaluate the effect of chronic treatment of spironolactone on cardiovascular complications associated with type 2 diabetes in rats.



MATERIAL AND METHODS



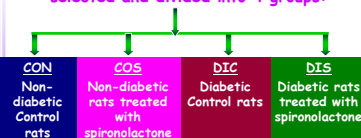
TREATMENT PROTOCOL

- *As per the guidance of the Committee for the Purpose of Control and Supervision of Experiments on Animals (CPCSEA), Ministry of Social Justice and Empowerment, Government of India, the protocol of the experiment was approved by our institutional animal ethical committee (IAEC)
- *Animals were housed at ambient temp, relative humidity and 12/12 light/dark cycle



GROUPS OF ANIMALS

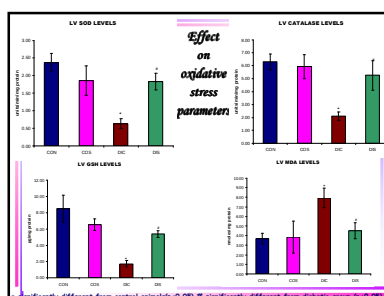
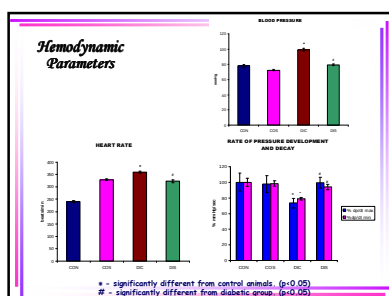
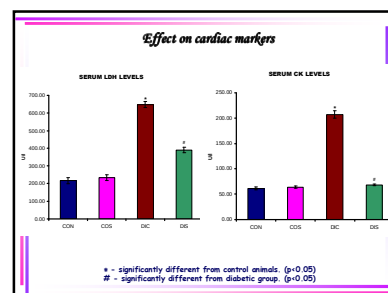
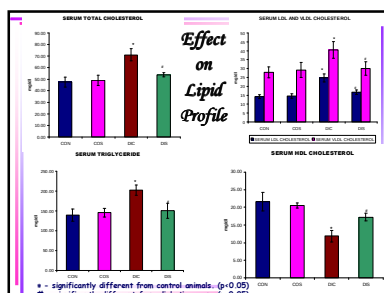
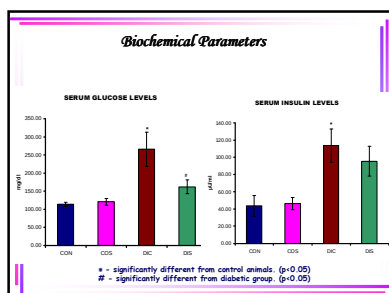
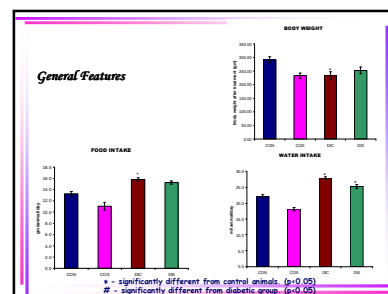
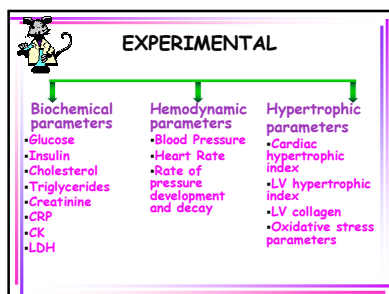
Sprague Dawley rats (200-250 g) were selected and divided into 4 groups:



- *Sprague Dawley were made diabetic by administering 90 mg/kg streptozotocin (STZ), i.p. in two day old rats. Diabetes was checked after 12 weeks.

- *Spironolactone (20mg/kg/p.o./day) was administered for 8 weeks

- *Statistical differences evaluated using one-way ANOVA followed by Tukey's test. Data were considered statistically significant at p<0.05



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