INTRODUCTION

Diabetic Cataract is the opacification of lens associated with chronic hyperglycemia. The number of people with diabetes mellitus is increasing and cataracts are one of the most common causes of visual impairment in these patients. Cataract in diabetic patients is a major cause of blindness (50%) in developed and developing countries. Loss of transparency of lens as a result of altered physiological process within its substances occurring due to diabetes. Multiple mechanisms have been laid on how chronic hyperglycemia might cause the abnormalities in the lens and vision, like PPAR, aldose reductase inhibitory action by binding with ALR2 and their potential to inhibit or delay the progression of diabetic cataract in experimental animals.

Working Hypothesis

To investigate inhibitory effect of the compounds A and B against the rat lens aldose reductase and to determine the IC50.

To study the effect of these compounds in delaying the progression of cataract in experimental models viz. in vitro galactose cataract and STZ-diabetic cataract in rats.

To investigate the antihyperglycemic effects of these compounds against STZ-diabetic and Galactose fed model.

Objective

INVESTIGATION OF ALDOSE REDUCTASE INHIBITORY AND ANTIHYPERGALCOSIC POTENTIAL OF 2, 4-THIAZOLIDINEDIONE DERIVATIVES AND EVALUATION OF THEIR PROTECTIVE EFFECT AGAINST GALACTOSE INDUCED AND STZ-DIABETIC CATARACT IN RATS

Mr. Chirag A. Prajapati*, Ms. Arpita A. Vyas

APMC College of Pharmaceutical Education & Research, Himatnagar, Gujarat, India

RESULT

STZ INDUCED CATARACT

GALACTOSE INDUCED CATARACT

CONCLUSION

The newly synthesized 2-4 thiazolidinedione derivatives under study showed inhibitory activity against aldose reductase enzyme in vitro and in vivo studies. Owing to these properties they also showed significant delay in the progression of cataract in different experimental models viz. in vitro lens organ culture, galactose cataract and diabetic cataract. Of the two compounds under investigation Compound B was found to be more effective in terms above parameters than compound A. Out of the two doses selected pronounced effects were observed at higher dose i.e. 200 mg/kg as compared to 80 mg/kg dose suggesting dose dependent action of both the compounds.

Aldose reductase inhibition paired with glycemic control and reduced oxidative stress with Protection in cataract.

REFERENCES


ACKNOWLEDGEMENT

Special Thanks to my respected Guide Dr. Nilesh J. Patel, Head, Department of Pharmacology, S.K.Patel College of Pharmaceutical Education & Research, Ganpat University, Gujarat, India.