EFFECTS OF FOLIC ACID AND TELMESARTAN IN HOMOCYSTINE INDUCED HYPERTENSION AND CATARACTOGENESIS

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I. INTRODUCTION

In 21st century, hypertension and cataract are leading problems in health care and in some instances both complication related to each other in respect to pathogenesis and source of origin. The notable point between hypertension and cataract is the presence of same pathogenic pathway linked to amino acid metabolism (homocysteine). The cataract which developed through hypertension must have less availability of folic acid that serves as a catalyst in methionine metabolism through which homocysteine is produced. So role of folic acid and antihypertensive drugs can play an important role in the management of both hypertension and hypertension induced cataract.

II. OBJECTIVES

The aim of our study was to investigate the role of folic acid and telmesartan in homocystine induced hypertension.

III. MATERIALS AND METHODS

Sprague Dawley albino male rats were used in the study. Homocysteine was purchased from Hi Media. Telmesartan, folic Acid, distilled water, SDS, acetic acid, and other chemicals used were of analytical grade.The animals were divided into 5 groups namely normal control (Group- I), Homocysteine control (Group- II), Homocystine + folic acid (Group- III), Homocystine + Telmesartan (Group-IV), Homocstine + folic acid + Telmesartan (Group-V). The homocysteine solution was given up to 3 weeks. The 10,000 µg/day/kg folic acid stock solution was prepared by dissolving 150mg of folic acid in 15ml of DMSO and dose given according to body weight of animals. Telmesartan stock solution (0.1mg/kg) was prepared by dissolving 120mg telmesartan in 12 ml of DMSO and dose given according to body weight of animals. The systolic blood pressure (SBP), diastolic blood pressure (DBP) and the mean arterial pressure (MAP) were measured using NIBP instument (Kent Scientific Instruments, USA). Antioxidant parameters like SOD, MDA, GSH, CAT and total protein were also evaluated.

IV. RESULTS

Results of the study indicates that the treatment with combination of folic acid and telmesartan produced significant effect in the reduction of SBP, DBP, MAP and MDA. While the level of total protein SOD, GSH and catalase were increased and these findings are beneficial to overcome the symptom of cataractogenesis caused due to homocysteine induced hypertension.

CONCLUSION

Our results suggest that concurrent administration of folic acid and telmesartan shows a prominent effect in reduction of homocystine induced hypertension and cataractogenesis.

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