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TAURINE PROTECTS AGAINST AXONAL DAMAGE IN SCIATIC NERVES OF DIABETIC RATS

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Diabetes is a growing problem all over the world and causes many complications like neuropathy, retinopathy, nephropathy and cardiomyopathy, it also damages liver. Nervous system is responsible for the coordination of body. But diabetes damages nervous system; peripheral nervous and central nervous system. Taurine is a non-proteinacious amino acid and naturally present in amino acids. It has been reported to have therapeutic properties. Current study was designed to determine the effect of taurine against axonal damage in sciatic nerves of diabetic rats. Diabetes was induced in the rats, after acclimatization, by use of streptozotocin (STZ) at 25 mg/kg of body weight. Five different groups; control group: healthy rats, DM: diabetic rats with no treatment, T1: diabetic rats give 0.5% taurine solution for drinking, T2: give 1% taurine solution and T3: 2% taurine solution. After eight weeks of study animals were sacrificed and studied for damage in sciatic nerves. Blood glucose level was substantially lower in treated rats over the period as compared to DM group, food intake was highest in the DM but weight gain was least while this effect was treated with taurine solution in dose dependent manner. DM group rats were observed with lowest nerve conduction velocity and highest latency, but use of taurine showed positive effects. Electron micrographs showed that axon were damaged in the diabetic rats but were protected in taurine groups according to dose; this was further confirmed by immunofluorescence study. Highest expression of nerve growth factor (NGF) was noted in control group, decreased in diabetic rats but gradually increased in taurine groups in dose dependent manner. TrkA was same in all groups but p-TrkA decreased in DM group and gradually improved with taurine. This showed that taurine can be used to prevent from axonal damage of sciatic nerves in diabetes, as medicine as well as preventive food.

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