Alpha-lipoic acid as an alternative treatment for diabetic polyneuropathy ?

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Aim : α-lipoic Acid (A α-L) is a pleiotropic compound with potential pharmaco therapeutical value against a range of pathophysiological diseases. The present study evaluates the protective role of α-lipoic acid against AlCl3-induced toxic effects in Wistar Albino rats .

Methods : The experiment was performed on 40 female rats in five groups of 8 rats each: control group (A), group 2 treated with (AlCl3) at (100mg/kg body weight), group 3 treated with alpha lipoic acid (A α-L); group 4 (AlCl3+ A α-L) treated with aluminum chloride and alpha lipoic acid (100 mg/kg body weight) at the same time and group 5 (A α-L -AlCl3) treated with alpha lipoic acid after aluminum chloride intoxication. The treatment is continued for three weeks.

Results : The biochemical assessment revealed a significant increase in blood glucose. The levels of progesterone and LH showed a significant difference between the two groups (pubescent and pre-pubescent), ($p<0.05$) .
The results showed serious alterations (the appearance of severe cellular lesions, infiltration of inflammatory and tissue degeneration at the level of hepatic parenchyma). A decrease in plasma glucose concentration was noted in the alpha lipoic acid-treated groups and in the AlCl3 and A combination-treated groups α-L. In the group treated with Aα-L alone, a significant decrease in urea levels was observed compared to the other groups.

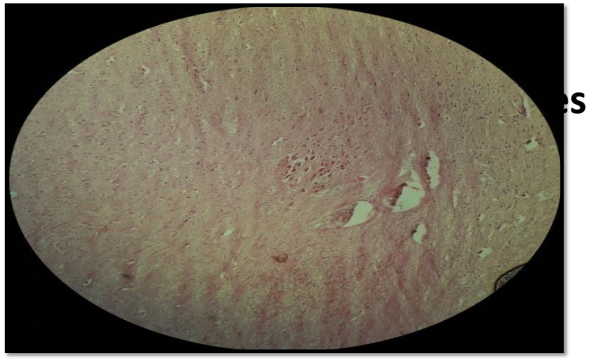

Figure 1: Histological section of the brain parenchyma: presence of necrosis plaque with degenerated nerve fibers from wistar rats stained with H&E (AlCl3 group). Gx10.

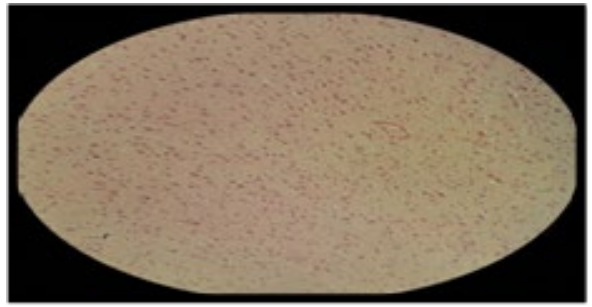

Figure 3: Histological section of the brain parenchyma: hyperplasia of pyramidal and glial cells of wistar rats ((AlA-AlCl3 group) stained with H&E .G x10

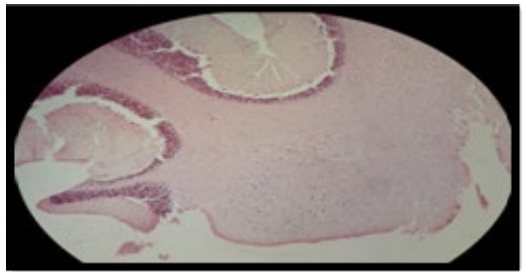

Figure: 2 Histological section of the cerebellar parenchyma: infiltration of molecular layer cells from wistar rats stained with H&E (AlCl3 group). G x10

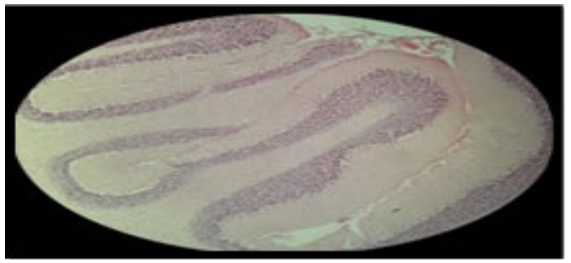

Figure 4: Histological section of the cerebellar parenchyma of alpha lipoic acid treated wistar rats stained with H&E (ALA group). G x10

CONCLUSION : A α-L, as a dietary supplement, has shown a potential role in cognitive functions with an improvement of the cholinergic system thus having an interesting therapeutic effect.