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Effects of Amitriptyline and Ashwagandha on the Oxidative State and Acetylcholine Esterase Enzyme Activities in Rats

ABSTRACT

Amitriptyline has a long history of effectiveness in treating depression. Due to its side effects, which include oxidative stress and anticholinergic effects, it is used less frequently. Ashwagandha is a substantial herb that has anti-depressant, antioxidant properties. Aim of study: To evaluate the effects of ashwagandha and amitriptyline on the oxidative state of acetylcholine esterase in rat salivary glands. Material and Methods: Four groups of rats were created. Distilled water was given to group I (control), and group II received amitriptyline (10 mg/kg) orally. Ashwagandha root extract (200 mg/kg) was given orally to group III, while similar doses of ashwagandha root extract and amitriptyline were given in combination to group IV. Rats from each group were sacrificed at (7 and 30 days). A blood samples were collected to measure the total antioxidant capacity (TAC). To measuring acetylcholine esterase enzyme, salivary gland tissues were dissected. Results: TAC after 7 days of oral administration showed a non-significant difference between groups while, after 30 days there is a significant decrease in TAC in group II and IV in comparison with that of the control group. Following oral dosing for seven days, acetylcholine esterase measurements revealed an increase in group II and a decrease in group IV as compared to the control group. While after 30 days, all groups' acetylcholine esterase enzyme levels significantly decreased when compared with the control group. It can be Concluded that, Amitriptyline causes oxidative stress and temporarily inhibits acetyl cholinesterase, which results in anticholinergic action. Ashwagandha has acetylcholine esterase inhibitory characteristics and mild salivary gland antioxidant benefits.