Summary and conclusion

The present work was carried out on adult male albino rats and designed to demonstrate the possible effect of vitamin E on metabolic changes induced by chronic stress as levels of corticosterone , insulin , glucose and lipid profile (cholesterol, LDL, HDL and triglycerides) in the blood .

Experiments:

The rats included in this study were classified into 4 main groups:

A- Group 1 (control group):

In which the rats were given olive oil orally per day for 28 days without exposure to stress.

B- Group 2 (stress group):

In which the rats were given olive oil orally per day for 28 days .Then exposed to chronic immobilization stress two hours per day for seven days.

c-Group 3 (vitamin E group):

This group divided into three subgroups:

The 1st subgroup:

In which each rat was given vitamin E (60 mg/kg) orally for 28 days without exposure to stress .

The 2nd subgroup:

In which each rat was given vitamin E (120 mg/kg) orally for 28 days without exposure to stress.

The 3rd subgroup:

In which each rat was given vitamin E (240 mg/kg) orally for 28 days without exposure to stress.

4-Group 4 (vitamin E and stress group):

This group divided into three subgroups.

The 1st subgroup:

In which each rat was given vitamin E (60 mg/kg) orally for 28 days. Then the rats exposed to immobilization stress two hours per day for seven days.

The 2nd subgroup:

In which each rat was given vitamin E (120 mg/kg) orally for 28 days. Then the rats exposed to immobilization stress two hours per day for seven days.

The 3rd subgroup:

In which each rat was given vitamin E (240 mg/kg) orally for 28 days. Then the rats exposed to immobilization stress two hours per day for seven days.

The results of the present work showed that:

In group 2(stress group):

Chronic stress causes significant elevation of insulin, corticosterone, blood glucose, triglycerides, cholesterol, LDL-C. and causes significant decrease in HDL-C.

*In group 3(*vitamin E group*):*

Only Administration of vitamin E (120 mg) to non stressed rats causes significant decrease in triglycerides and significant increase in HDL-C.

In group 4 (vitamin E and stress group):

-Administration of vitamin E (60 mg) &(120mg) then exposure to chronic immobilization stress causes significant decrease in triglycerides, cholesterol, LDL-C and significant increase in HDL-C.

-Administration of vitamin E (240mg) then exposed to chronic immobilization stress causes significant decrease in triglycerides and significant increase in HDL-C.This may be due to hypervitaminosis.

From these results we concluded that:

- Chronic immobilization stress causes the symptoms of metabolic syndrome as increase in corticosterone level , increase in insulin level, increase in glucose level , increase in triglycerides , increase in cholesterol level , increase in LDL-C level and decrease in HDL-C level.

- Vitamin E has a role in modifying the symptoms of metabolic syndrome induced by chronic stress by decreasing corticosterone , insulin , glucose, cholesterol , triglycerides, LDL-C levels and increasing in HDL-C level.

- Administration of vitamin E to non-stressed rats causes decrease in triglycerides and increase of HDL-C (good cholesterol). So vitamin E can decrease the risk of atherosclerosis.

- Administration of vitamin E is a dose dependant. As vitamin E (60 mg) has no effect on lipid profile level in non-stressed rats. Vitamin E (120 mg) causes significant decrease in triglycerides and significant increase in HDL-C. , however vitamin E (240 mg) causes vitamin toxicity.

- Stressed rats need higher dose of vitamin E than non-stressed.