Summary And Conclusion

Green tea and its polyphenols content have recently attracted attention because of their physiologic activity. This study was designed to compare the green tea extract (GTE) with atorvastatin regarding to their effects on lipid profile, oxidative activity, atherosclerotic changes of aorta and body weight and also to compare the green tea with enalapril regarding to their effects on arterial blood pressure in vivo. This work was done also to study GTE effects on isolated perfused rabbit's heart, isolated perfused rabbit's aortic spiral strip, and on isolated perfused rabbit's jejunum in vitro.

As regards the in vivo study, rats were used and divided into four equal groups: Control group, hypercholesterolemic group, hypercholesterolemic group treated with GTE (each rat received 325 mg daily for 4 weeks by oral route) and hypercholesterolemic group treated with atorvastatin (30 mg/kg orally for 4 weeks).

The induction of hypercholesterolemia was done by high fat diet (1 % cholesterol and 10 % coconut oil) for seven weeks. At the end of the study period, the rats were subjected to measuring total cholesterol, LDL, HDL, MDA levels in blood and total body weight.

It was found that GTE and atorvastatin produced a significant reduction in total cholesterol, LDL, and MDA and significant increase of HDL in hypercholesterolemic rats. Both GTE and atorvastatin produced significant reduction of atherosclerotic changes that occurred in aortic sections. GTE also produced more significant reduction of body weight compared to atorvastatin.

As regard studying the effect on blood pressure, rats were used and divided into four equal groups: Control group, hypertensive group, hypertensive group treated with GTE (each rat receiving 325 mg daily for last 4 weeks by oral route) and hypertensive group treated with enalapril (30 mg/kg orally for last 4 weeks).

A model of hypertension was done by renal artery ligation of left kidney for seven weeks. At the end of the study period, the rats were subjected to measuring SBP and MBP.

It was found that GTE had no significant effect on blood pressure compared to the enalapril which produced significant reduction of SBP and MBP.

In vitro study, It was found that GTE produced significant increase of the force of contraction of the isolated perfused rabbit's heart which was not mediated by beta adrenergic receptors.

Also, GTE produced significant contractile effect on the isolated rabbit's aortic spiral strip. This induced contractions of isolated rabbit's aortic spiral strip not abolished by alpha adrenergic blockers.

On the isolated rabbit's jejunum, GTE produced significant stimulation of spontaneous rhythmic contraction of jejunum and this effect was not mediated through nicotinic, muscarinic, or histaminic receptors.

In conclusion, GTE is effective and may be recommended for treatment of hypercholesterolemia, obesity and prophylaxis of cardiovascular disease due to its antihyperlipidemic and antioxidant effects.

Proposal for future research:

The chemoprotective effect of GTE, its possible mechanism of action, and the appropriate dose levels may be studded. Also, The chelating effect of GTE on metals and if this can affect the blood picture or not, this should be studded further.