The Effect of Verjuice on Serum Lipid Levels in Mice Rendered Atherosclerosis

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Abstract: The aim of this study was to investigate the effects of verjuice on atherosclerotic plaques and serum lipids in a mouse model. The animals were divided into 6 groups: Group A (positive control); Groups B (negative control) and C, D, E, F (experimental) all were fed with 2% cholesterol in diet. Groups C (preventive) and D (treatment) were further treated with 7 ml/kg/day verjuice solution respectively from the first and the 42nd days throughout the experiment. Groups E (preventive) and F (treatment) were also treated with 14 ml/kg/day of verjuice in the same way as C and D. The serum lipids were measured by enzymatic techniques. Serum LDL-C, HDL-C and total cholesterol levels were increased in negative control group vs positive control group. The use of verjuice as preventive regime increased the serum LDL levels in comparison to negative control group (P<0.05); but treatment with 14 ml/kg/day decreased triglyceride levels vs negative control group (P<0.05). Cholestrol regimen was not able to induce atherosclerotic plaques in mice. Verjuice as treatment dose of 14 ml/kg/day is useful in lowering of serum triglyceride but it can increase serum LDL as preventive regime. This animal model is not a proper one for the study of atherosclerosis.

Key words: Verjuice, LDL, HDL, Cholesterol.

Introduction

Arteriosclerosis is a systemic disease that affects the vascular bed and it is the leading cause of mortality and morbidity in industrialized countries. The name arteriosclerosis is a term of Greek origin meaning “hardening of the arteries”. Carotid and coronary arteries are the two most common sites of involvement of atherosclerosis 1,2. Atherosclerosis is a chronic, progressive disease with a long asymptomatic phase. Clinical manifestations of atherosclerosis are of coronary artery disease, cerebrovascular disease, and peripheral arterial disease. These manifestations will occur in 2 of 3 men and 1 in 2 women after age 40. Almost 60% of deaths have reported to be due to a cardiovascular disease (CVD) 3.

It is also a disease of elastic and large muscular arteries in which the atheroma is the characteristic lesion. The lesions of atherosclerosis invade the arterial intima with variable amounts and types of lipids, connective tissues, inflammatory cells, and a variety of extracellular components including matrix proteins and enzymes and calcium deposits. Atherosclerosis also lead to endothelial dysfunction since it has an important role in vascular tone regulation and its dysfunction is a key factor in progression of