ABSTRACT

BACKGROUND:

Cardio metabolic risk is a constellation of physical conditions and metabolic abnormalities occurring together that increases an individual's risk for the development of cardiovascular diseases and type II diabetes mellitus. It has been recognized over past few years that women are prone to various cardio metabolic risk. Menopausal changes are thought to increase cardio metabolic risk in women. Evidences show that sociodemographic and ethnic differences play important roles in cardio metabolic risk profile of subjects. Anaemia is a common finding in women. There are probabilities that both the conditions may coexist in women. Evidences suggest that increased oxidative stress to adipocytes is central to the pathogenesis of cardio metabolic disorders in subjects.

OBJECTIVES:

The main objective of the study was to assess the cardio metabolic risk profile of both premenopausal and postmenopausal women from different ethnic and non-ethnic communities of India and to evaluate association of traditional cardio metabolic risk factors with obesity and atherogenicity markers, anaemia status and status of various oxidative stress markers in women.

METHODS:

The present thesis is part of a hospital based observational study on cardio metabolic risk profile of women from Vijaypur, Karnataka and Agartala, Tripura. Four hundred and fifty (450) female subjects (age: 25-65 years) were evaluated for presence of various cardio metabolic risk factors. The study protocol included calculation of Body Mass Index (BMI), measurement of Waist Circumference (WC), Waist-Hip Ratio (WHR) and Blood Pressure (BP). Haemoglobin concentration (Hb%), Fasting blood glucose (FBG) level and lipid profile were measured in an auto analyser by using commercial kits. Plasma concentration of lipid peroxidation product Malondialdehyde (MDA) was estimated. Antioxidant enzymes Erythrocyte catalase (CAT), Erythrocyte superoxide dismutase (SOD), Erythrocyte Glutathione peroxidase (GPx) were assayed colorimetrically. Blood levels of antioxidant vitamins- Vitamin C (VIT-C) and Vitamin E (VIT-E) were estimated. Cardio metabolic risk profile of the subjects was evaluated according to consensus statement for diagnosis of general obesity, abdominal obesity and metabolic syndrome for Asian Indians. The association among menopausal status, various obesity and atherogenicity markers, anaemia, sociodemographic status, ethnicity and antioxidant status with cardio metabolic risk profile of the subjects were evaluated.
RESULTS:

26.60% of premenopausal subjects and 49.24% of postmenopausal subjects were found to have profound cardio metabolic risk which increases with age. Central obesity appears to be the most important cardio metabolic risk component in both pre and post menopausal groups. Triglyceride and LDL levels of the subjects were correlated with BMI, WC, WHtR and TG:HDL-C ratio. Systolic and diastolic blood pressures were correlated with TG:HDL-C ratio and WHR. Fasting blood glucose was correlated with WHR and WHtR. 44.71% of subjects with anaemia showed co-existence with profound cardio metabolic risk in them. Subjects with higher educational level and less family income were found to have lesser cardio metabolic risk. There was no significant difference in occurrence of cardio metabolic risk factors in women from different ethnic groups. Level of lipid peroxidation product MDA was significantly high in subjects with profound cardio metabolic risk. Levels of antioxidant enzymes CAT, SOD and GPx were found to be significantly less in these subjects. Levels of antioxidant vitamins - Vitamin C and Vitamin E did not show significant difference between subjects with profound cardio metabolic risk and those without cardio metabolic risk.

CONCLUSION:

The findings suggested that postmenopausal women had significantly more cardio metabolic risk than premenopausal women. In all groups of women, central obesity was the main component associated with cardio metabolic risk. There was a high co-existence of anaemia and cardio metabolic risk in subjects. Level of education and family income influenced cardio metabolic risk of the subject. Antioxidant status was associated with presence of cardio metabolic risk factors in women.