ABSTRACT

EFFECT OF LIFESTYLE FACTORS ON SERUM ANTIOXIDANT LEVELS IN APPARENTLY HEALTH INDIVIDUALS

INTRODUCTION

Multifactor influence including lifestyle factors on health status results in initiation of disease pathology of non communicable diseases (NCD) like diabetes mellitus, hypertension, cancer etc in a very young age. This phase remains undetected due to the "apparently" healthy status seen in young age. Reactive oxygen species initiate the pathogenesis in NCD; hence serum antioxidant levels may detect the initiated internal metabolism changes.

AIMS AND OBJECTIVES

The purpose of this study is to determine whether serum antioxidants can act as biomarker to determine the internal changes initiated by lifestyle choices of the study population of apparently healthy individuals in South India.

MATERIALS AND METHODOLOGY

104 Healthy volunteers of age 20-30 years from Karpaga Vinayaga Institute of medical sciences, Maduranthagam were randomly selected, based on their cut off values of FSG <100mg/dl, serum triglycerides <170mg/dl, serum cholesterol<

< 250mg/dl and hemoglobin >12 g/dl for females and >14g/dl for males and with no significant medical illness that can cause oxidative stress were selected to participate in this study. Lifestyle factors like age, gender, diet, socioeconomic condition, physical activity, psychological stress, smoking, alcohol, BMI were evaluated based on internationally pre-validated questionnaires. Then fasting venous samples collected for estimation of

Superoxide dismutase (SOD)-Spectrophotometric method

Glutathione peroxidase (GPx) -Spectrophotometric method

Coenzyme Q_{10} – single dilution method HPLC

Uric acid-Uricase / POD method

RESULTS

Age (25.30±3.214) BMI(22.5±4.65) Superoxide dismutase (U/mL) (181.78±17.9) Glutathione peroxidase (U/L) (8607.36±1237.2) Coenzyme Q_{10}(µg/L) (484.12±59.65) Uric acid (mG/dL) (4.92±1.27). SOD had a positive relationship with increased dietary intake of fruits and vegetables ($p<0.01$). It also increased with increased smoking with level of significance being < 0.05. It showed a negative relationship with age ($p<0.05$), socio-economic score ($p<0.05$), psychological stress ($p<0.01$), BMI ($p<0.05$). GPx had a positive correlation with

age and alcohol (p<0.01), whereas it had a negative correlation with physical activity and smoking (p<0.01). CoQ_{10} had a significant positive association with smoking and dietary intake of fruits and vegetables (p<0.01), and an inverse relationship with socioeconomic class and BMI (p<0.01). The serum uric acid values were positively correlated with age (p<0.01), alcohol consumption (p<0.01), and BMI (p<0.01). And it had a negative relationship with socioeconomic class (p<0.01), physical activity (p<0.01), and smoking (p<0.01).

CONCLUSION

Based on these findings serum antioxidants can be used as biomarkers to predict the onset of NCD even in young age.