ABSTRACT

Background

The stress at work the place (Occupational Stress) can be inferred from the existence of problems in the employee/environment interaction or measured in terms of health problems. The prevalence of cardiovascular disease (CVD) and its risk factors among occupational groups have been reported. Cardiometabolic syndrome is identified as a risk factor and the pre-state for CVD and type-2 diabetes. Metabolic syndrome is a cluster of risk factors including obesity, hyperglycemia, hypertension and dyslipidemia. The association between the level of occupational stress and development of metabolic syndrome remains unclear.

Objectives

We aimed to determine the impact of occupational risk factors including stress on metabolism in people with different working environment and to estimate the differences in prevalence and risk of metabolic syndrome with relation to level of stress among individuals with different occupations.

Methods

A cross sectional study was conducted on subjects (n=405) with three different occupations with age ranging from 30-60 years: Bank employees (n=97), Bus drivers (n=90) and police constables (n=108). The subjects not belonging to these three occupational groups served as the control group (n=110). The level of stress was assessed using a validated perceived stress scale (PSS), including 14-items. All the participants were further divided into 2 subgroups on the basis of PSS scale: (a) Stressed and (b) Non-stressed. Fasting blood glucose, Glycosylated HbA1c, lipid profile, cortisol, insulin, Lipoprotein (a), Homocysteine, C-reactive protein (CRP) in serum and microalbumin in urine were measured.

Results

We found a significant rise in the serum cortisol level in all the participants those identified as under stress (stressed subgroups) based on Perceived stress scale scoring. There was a statistically significant difference in the levels of Cortisol between stressed and non-stressed subgroups of all the three occupations. While no significant difference was noticed in serum cholesterol and HDL cholesterol between stressed and non-stressed subgroups.
A significant positive correlation was observed between serum cortisol and fasting blood glucose (p< 0.001), Glycosylated HbA1c (p<0.05) in the stressed subgroup of bank employees and police constables. On the basis of NCEP ATP III guidelines, participants were further classified into metabolic and non-metabolic syndrome subgroups. The prevalence of metabolic syndrome was 38 % among all the study group participants (n=295). Waist circumference level (p<0.001) was significantly raised in subjects with metabolic syndrome subgroups of bus drivers, bank employees and police constables.

The CVD risk factors were quite high among the study group participants. We found that 10.9% subjects had BMI > 30 Kg / m²; 8.8% increased waist circumference; 15.6% elevated LDL cholesterol; 13.7% raised triglyceride; 14.7% hypertension, diabetes 16.9% and smoking habit 26.2 %.

**Conclusion**

The above findings demonstrate a significant association between level of stress and risk factors of metabolic syndrome in the participants of three study groups. Risk factors of metabolic syndrome were significantly higher in stressed subgroups when compared with non-stressed subgroups. The study indicates that many employees from the studied occupational groups were at the risk of developing CVD, type-2 diabetes and Cardiometabolic syndrome. The study emphasizes about addressing the health complications arising from the job stress and a more aggressive working health policy has to be implemented at all work places.