ABSTRACT

A community based cross sectional descriptive study was undertaken to determine the prevalence and risk factors of Diabetes Mellitus (DM) and to describe the prevalence and risk factors of Metabolic Syndrome (MS) among adults in Jaffna District. DM was diagnosed based on the American Diabetes Association (ADA) criterion and modified National Cholesterol Education Program Adult Treatment Program III (NCEP ATP III) criteria were used to define the MS. Multistage stratified cluster sampling technique was employed to select 544 subjects over 18 years. An interviewer administrated questionnaire was employed. Anthropometric and blood pressure measurements were recorded and biochemical parameters such as Fasting Plasma Glucose (FPG), glycated haemoglobin (HbA$_{1c}$), High Density Lipoprotein (HDL), and triacylglycerols were analyzed using enzymatic colorimetric assay.

The response rate was 95.3% and among the subjects, 224 (43.8%) were males. The prevalence of DM was 16.4% (95% CI: 13.3-9.9) in overall, 19.6% (95% CI: 14.6-25.4) in males and 13.9% (95% CI: 10.1-18.5) in females. Of the total diabetic subjects, 27.4% were previously undiagnosed. Prevalence of pre-diabetes was 7.4% and dysglycaemia was 23.9%. Prevalence of DM among the smokers was significantly higher when compared with non-smokers ($P=0.032$). Prevalence of DM was higher among the sedentary subjects (23%) than active subjects (13.9%, $P=0.034$). In the final multivariable logistic regression model adjusted for age, high Waist Hip Ratio (WHR) and central obesity, people with family history of diabetes were 3.5 times more likely to develop DM compared to the people without family history of diabetes ($p<0.001$, 95% CI: 2.1-5.9). Likewise subjects with high WHR carried twice the disease risk ($p=0.009$, 95% CI: 1.2-3.6). Association of DM with central obesity was only marginally significant ($p=0.057$, 95% CI: 1-3). The effect of age categories greater than 65, 50-64 and 35-49 years on DM were 12.6 ($p<0.001$, 95% CI: 4.2-38), 7.3 ($p<0.001$, 95% CI: 2.7-19.8) and 3.8 ($p=0.01$, 95% CI: 1.4-10.8) times higher when compared with the age category 18-34 years respectively.

Prevalence of central obesity (waist circumference for male ≥90cm, female ≥80cm) was 23.9%. Raised fasting plasma glucose (≥100mg/dL, or previously diagnosed type 2

diabetes) was found in 23.9% of studied subjects. Among the subjects studied, 25% had hypertrigylyceridaemia ($\geq$150mg/dl). Low level of HDL cholesterol (<40mg/dL in males, <50mg/dL in females) was found in 79.3% of subjects. Raised blood pressure (systolic blood pressure $\geq$130 or diastolic blood pressure $\geq$85mm Hg or previously diagnosed hypertension) was found in 36.6% of the study subjects. The prevalence of MS (IDF definition) was 15.8% (95% CI: 12.8-19.3) and it was 17.4% (95% CI: 12.7-23.0) in males and 14.6% (95%CI: 10.8-19.3) in females. But according to the modified NCEP ATP III definition, prevalence of MS was 24.1% (95% CI: 20.4-28) and it was 26.8% (95% CI: 21.1-33.1) and 21.9% (95% CI: 17.3-27.2) among males females respectively. Subjects living in urban area had higher prevalence of MS when compared with subjects in rural area (p=0.015). In the study population increased age (p<0.001) was a risk factor for development of MS. Professionals had high prevalence MS (41.7%). Smoking (p=0.005) and alcohol consumption (p=0.09) were risk factor for the development of MS. Subjects in sedentary life style had higher prevalence of MS 29.9% (95% CI: 20.5-40.6) than active subjects 23.7% (95% CI: 19.7-28.1).

In conclusion, one out of four persons in the Jaffna district has problem in glucose homeostasis. Prevalence of diabetes is high among the Jaffna community when compared with rest the country. Males have high risk of developing dysglycaemia. Age, family history and WHR are risk factors for DM. Aging, urban living, smoking, alcohol consumption and physical inactivity carried higher risk for developing MS in this community.