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Metabolic syndrome among adults in Northern Sri Lanka: Prevalence and associated risk factors

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Objectives of this study were to determine the prevalence of Metabolic Syndrome (MS) and to describe the risk factors for MS in adults of Northern Sri Lanka. A community based cross sectional descriptive study among adults was undertaken during the period of August, 2011 to May, 2012. A multi stage stratified cluster sampling was used to select the subjects. In the first stage of sampling the population was stratified into urban and rural sectors. The primary sampling unit was a *Grama Niladari* division (GND). Considering the proportion of the population, 7 and 25 clusters were selected from the urban and rural sectors respectively. In each GND, the selected unit of enumeration was a household. One adult from each identified household was randomly selected. Based on International Diabetic Federation guidelines for Asians, for a person to be defined as having the MS, central obesity (waist circumference for male ≥ 90 cm, female ≥ 80 cm) and any two of the following four factors: raised triglycerides (≥ 150 mg/dl), reduced HDL cholesterol (< 40 mg/dL in males, < 50 mg/dL in females), raised blood pressure (systolic BP ≥ 130 or diastolic BP ≥ 85 mm Hg or previously diagnosed hypertension) and raised FPG (FPG ≥ 100 mg/dL, or previously diagnosed type 2 diabetes) were taken. Of the 544 selected subjects, 95.3% (511) had responded and 224 (43.84%) were males. The prevalence of MS was 15.8% (95% CI: 12.8 - 19.3) and was higher in males (17.4%, 95% CI: 12.7 - 23.0) than in females (14.6%, 95% CI: 10.8 - 19.3). In the rural area, 14.7% (58) had MS while 19.7% (23) in urban area had MS. Mean ages of the study population, males and females was 45.65(± 14.46), 47.51(± 14.98) and 44.20 (± 13.89) years respectively. Higher prevalence of MS (47.3%) was observed in subjects above 65 years. High prevalence of MS was found in married subjects (16.7%). Education level ($p = 0.088$) was not significantly associated with the development of MS. Professionals had significant association with development of MS when compared with elementary workers (prevalence OR = 3.896, 95% CI: 1.05 - 14.52). Higher prevalence of MS was found in people with higher income (42.9%). However, house hold income ($p = 0.521$) was not significantly associated with the development of MS. Vegetarians had a higher risk of developing MS when compared with non vegetarians ($p = 0.043$). Smoking was a risk factor for developing MS ($p = 0.007$) while type of smoking was not significantly associated with the development of MS ($p = 0.635$). There was no significant difference in the prevalence of MS between alcoholics and non alcoholics ($p = 0.213$). Physical activity level was categorized based on IPAQ score. There was no significant association between the physical activity levels and the development of MS ($p = 0.342$). Increased age, living in urban area and smoking were found to be risk factors for developing MS in this community.