Distribution and determinants of abdominal obesity in an adult population in the district of Colombo, Sri Lanka

Carukshi Arambepola, Dulitha Fernando
Department of Community Medicine, Faculty of Medicine, University of Colombo, Sri Lanka

Objectives: To assess the distribution and determinants of abdominal obesity in an adult population in the district of Colombo

Introduction: With increasing life expectancy and changing lifestyles, non-communicable diseases have become important causes of morbidity and mortality in Sri Lanka, signifying a 'double burden' of diseases. Among them, coronary heart disease (CHD) takes the leading place. South Asians as an ethnic entity are more prone to develop abdominal obesity - an independent risk factor of CHD. Thus, it is important to assess the magnitude and determinants of abdominal obesity in order to identify target populations at risk of CHD in Sri Lanka.

Study setting: Colombo district is the commercial capital of Sri Lanka which presents a mixed picture of an area experiencing rapid and deep-seated demographic and social changes.

Study population: A sample of 1400 males and females of the age range of (20-64) years was selected. Being a resident of Colombo for a continued period of not less than one year ensured his/ her lifestyle to be well established related to their residence in the area. Those with pathological or iatrogenic conditions of obesity were excluded.

Sampling method: A multi stage-stratified-probability sampling method was used to identify a sample which represented the adult population of the district of Colombo by age, sex and geographical area, as defined by 2001 Census data. Sample was scattered in 40 administrative divisions (GN divisions) as clusters of 35 individuals.

Methodology: Data was collected during home visits by pre-intern medical officers and field guides. Determinants of obesity were assessed in relation to population characteristics (demographic, socio-economic and migration factors) and risk behaviours related to lifestyles (level of physical activity, quality of diet assessed in relation to the consumption of energy-dense-food and dietary fibre, selected household and individual dietary practices) by means of an interviewer-administered-questionnaire. Anthropometric measurements (waist circumference,

weight, height) were made according to a standardized protocol. Obesity was defined according to standard classifications based on Asian adults[1].

Results and Discussion: Response rate of the study sample was 96.3%. It had a higher proportion of males and a median age of 38.9 years. The majority consisted of Sinhala-Buddhists (84%) resident in urban areas (55%). Overall prevalence of abdominal obesity was 34.9 per 100 persons (95% CI=32.5-37.4). Corresponding rates of overweight and generalized obesity were 49 % (95% CI=46.4-51.6) and 32.2 % (95% CI=29.8-34.7), respectively. Of the total, 32% had both types of obesity while 48% subjects had neither. Previously reported much lower prevalence rates of obesity in Sri Lanka may be largely explained by the changes in demographic profile, urbanization and lifestyles that occurred during a time gap of approximately 10 years.

Of the many correlates, the significant determinants of abdominal obesity common to both males and females in the logistic regression model were age over 34 years, residence in urban areas, currently married status and low physical activity. Furthermore, religion was a significant determinant among females in contrast to socio-economic status among males.

A progressively higher prevalence of abdominal obesity was noted with increasing age. Married females were more at risk (OR=2.3) of abdominal obesity than married males, implying the influence of parity (birth of the first child) of females. Significance of abdominal obesity among less-deprived sections of the population was evident among males, by its independent association with increasing levels of education (A/Levels and beyond- β=0.886, OR=2.5), monthly income (Rs.>10,000- β=1.57, OR=4.8) and sedentary occupations ($p<0.001$). In addition, higher levels of abdominal obesity observed with frequent 'eating out' and 'large' meals ($p<0.05$) and, sub optimal quality of diet ($p<0.001$) among males may be linked to increased consumption of energy dense foods of high cost. These findings are keeping with the current trends observed of the epidemiological transition in developing countries.

Urban residence is shown to associate with a wide range of factors that affect diet, physical activities and body composition. It was explicit by the independent urban-rural gradient associated with abdominal obesity in both sexes ($p<0.001$). Effects of urbanization were intense via transition from rural to urban lifestyle, as implied by the higher prevalence of abdominal obesity among subjects and their household members with international migration ($p<0.001$). The significantly higher abdominal obesity associated with low consumption of whole grain products and, high consumption of whole eggs products and deep fried foods ($p<0.05$) demonstrated the

negative influence of fast food culture on the dietary habits of Sri Lankans. It also highlighted the inter-sectoral differences in such food consumption patterns between rural and urban sectors.

Conclusions:

In the backdrop of a demographic and epidemiological transition in Sri Lanka, this study identified population and lifestyle characteristics among risk groups, where prevalence of abdominal obesity was relatively high. Most of them were behaviour-related, hence influenced by urbanization and unhealthy lifestyles.

Reference:

[1] WHO Regional Office for the Western Pacific/ International Association for the Study of Obesity/ International Obesity Task Force, 2002. The Asia-Pacific Perspective: Redefining Obesity and Its Treatment. Western Pacific Region: WHO, IASO, IOTF.