Chapter 21

Metabolic Syndrome Challenges and Opportunities in the Indian Scenario: Relevance of College Outreach

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ABSTRACT

Metabolic syndrome (MetS) refers to clustering of lipid abnormalities and insulin resistance in an individual. Its increasing prevalence in children and adolescents can be curbed by generating pertinent awareness among students at educational institutions regarding importance of BMI, nutritional content of food, food habits etc. Its prevalence is reported to vary according to racial and ethnic groups urging the need for focused studies by educational institutions on the risk factors relevant to the Indian population. Universities can also aim at introducing information regarding lifestyle interventions, plan outreach programs to ingrain the information not only in the student population but also the society as a whole. In this book chapter, we propose to review literature which will help in identifying areas that need immediate attention, possible implementation strategies in the education system along with the efforts of our lab towards understanding the etiology of this epidemic.

INTRODUCTION

Metabolic syndrome (also referred to as Syndrome X, MetS, Reaven’s Syndrome) was observed by Kylin in 1920’s when he demonstrated the association between hypertension, hyperglycemia and gout. Despite its early discovery, the syndrome still looms at large gaining increasing foothold with every passing year. To provide clarity, the International Diabetes Federation put forth a definition which states the presence of three risk factors (increased waist circumference, hypertension, raise fasting blood glucose, hyper-

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triglyceridemia and low High Density Lipoprotein) in an individual indicates the metabolic syndrome (Alberti et al., 2009). Metabolic syndrome (MetS), earlier observed in the aged has also been identified in children and adolescents! This is a problem which can be handled at university and even school and college level. Monitoring the Body Mass Index, physical activity during the PT classes, food habits of the students could help keep the problem at bay. A major culprit for obesity is the food provided in canteen. Mostly junk food such as deep fried items, burgers, pastries, sugar filled artificially flavored cold drinks is available in the canteen. Very few canteens in these institutions provide the option of healthy meals. Awareness of the seriousness of this situation can perhaps urge these institutions to change the platter of food served thereby promoting health among children and adolescents. The syndrome has been called as ‘small baby syndrome’ due to reports stating low gestational/birth weight was associated with increased occurrence of MetS (Kensara et al., 2006). The prevalence of MetS has increased worldwide across all age groups (Vliet-Ostaptchouk et al., 2014; Obgera 2010; Kanjilal et al., 2008).

Currently, in India most studies on MetS are limited to its prevalence according to the existing accepted definition. More studies focusing on the risk factors best suited to identify the syndrome in different parts of India, the underlying causes for all age groups, the existing treatment regimen and its efficacy for the Indian population need to be carried out. The existing treatment regimen has a symptomatic approach and targets one symptom at a time. The regimen includes life style interventions which include diet, exercise, medications for the symptoms observed such as diuretics, acetylcholine esterase inhibitors, insulin sensitizing drugs and surgical interventions such as gastric bypass. Life style interventions are subject to the availability of time and will power of the individual concerned. Inclusion of the importance of life style interventions in academics could go a long way. The need of the hour is to approach the syndrome in a holistic manner considering all the abnormalities that constitute it targeting a specific population.

The incidence of MetS is found to precede the development of many complications such as Type 2 Diabetes, Cardiovascular disorders, Sleeping disorders and fertility problems. Many people including the university and college people are unaware that the above mentioned problems could be a tell tale of the underlying MetS. Self-reported sleep disturbances, including snoring, sleep duration, difficulty initiating and maintaining sleep and poor sleep quality, as well as polysomnographically assessed sleep architecture are associated with prevalent metabolic syndrome and is also seen to predict the development of metabolic syndrome in community adults. Pathogenesis of the Metabolic Syndrome also involves the introduction of artificial light and work into the night-time. It is unclear whether metabolic syndrome causes cognitive decline. Reports suggest that MetS is a risk factor for cognitive decline and dementia. MetS is also reported to occur in patients suffering from chronic depression. Patients with Polycystic Ovary are reported have metabolic syndrome at an early age. It is evident that MetS in itself is detrimental to health, but its presence causes the development of other health complications which worsen the health problems.

MetS is a complicated condition influenced by gender, race, ethnicity and other parameters inherent to a particular population. In this book chapter, we propose to review important literature which will help in identifying areas that need immediate attention and how it can be implemented at the level of the education system. We would also include the efforts of our lab towards understanding the etiology of this epidemic amongst us.