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**Association of obesity indicators in relation with hypertension: A cross sectional survey, Medical Yatra 2017**

**Introduction:**

Obesity is a global health challenge and is an important preventable risk factor for morbidity and mortality worldwide. According to WHO, around 2.8 million people die every year as a result of being overweight or obese. With the nutritional and epidemiological transition, it has been noted that in low-income countries there is an increase in the prevalence of overall as well as abdominal obesity. The aim of our study is to determine the predictive role of Body Mass Index (BMI) and Waist Circumference (WC) in association with Hypertension (HTN) among adults in rural India.

**Methods:**

A cross sectional survey was conducted among adult patients who participated in Medical Yatra by AIPNO in Bhopal, Madhya Pradesh, India. A total of 137 participants were included in the study, with no h/o diabetes, nonalcoholics and nonsmokers. BMI, WC and Blood Pressure were measured at the time of visit to the medical clamp. The odds ratio for both BMI and WC for HTN was calculated using a Fisher Exact test. Diagnosis of HTN was based on the Joint National Committee 8 criteria set. Generalised Obesity and overweight are defined as BMI >30 kg/m2 and 25-29.9 kg/m2 respectively. Abdominal obesity defined as WC >102 cm in men, >88 cm in women, overweight when WC is 94-102 cm in men and 80-88 cm in women.

**Results:**

Among the total 137 participants in the study, the prevalence of HTN was 45.3% in total with 46.2% among males and 44.9% among females. Among the BMI category, 17.5% were normal BMI and 82.5% were overweight, which includes Overweight and Obesity. In the WC category, 60.6% were normal and 39.4% were overweight. This study showed that both BMI and WC were positively related to HTN. The odds of having hypertension in subjects with high waist circumference is 7.92 times than the subjects with normal WC (p value <0.0001). The odds of having hypertension in subjects with normal BMI is 1.19 times higher than overweight and obese subjects (0.82230). This study showed that WC seemed to be associated with higher odds compared to BMI for HTN.

**Discussion:**

Obesity is a major worldwide concern as it leads to adverse metabolic effects on BP, cholesterol, and insulin resistance. General obesity is usually measured by BMI, though it is a simple measure to calculate and determine risk, it has several limitations. With BMI measurement, lean and fat body mass cannot be differentiated for a given, age, race and sex. Various cross sectional studies showed that central obesity indicators such as WC, Waist to Hip Ratio, Waist to Stature Ratio were strongly associated with cardiovascular disease risk factors. Our study included both males and females, from rural India and showed that WC is strongly associated with HTN than BMI. This study provides data on increased risk of HTN in subjects with high WC than compared to BMI, and provide a simple method of alerting people at increased risk for hypertension especially in populations medically underserved in rural India.