Comparative study of body mass index, fat mass index and fat free mass index in assessing obesity among adult Indian women

Srishti Sinha, Lalita Verma and **Shailly Nigam**
University of Delhi, India

Obesity is referred as an excess accumulation of fat in the body. It can be estimated through laboratory techniques which are however, costly and difficult to use in field setting. This has resulted in emergence of various anthropometric indices. Of all, the most widely used index for assessing obesity is Body Mass Index (BMI). But, due to the limitation of BMI in distinguishing between Fat Mass and Fat Free Mass, new indices: Fat Mass Index (FMI) and Fat Free Mass Index (FFMI) have been formulated. The validation studies of these indices among different ethnic groups need to be carried out. Therefore, the present study was done to examine the correlation of these anthropometric indices with Body Fat Percentage (BF%) and compare these for accuracy in assessing obesity among adult Indian women (25-45 years). The data was collected on anthropometric measurements like height, weight, waist circumference, hip circumference, skin fold at triceps and the body composition was assessed using Bioelectrical Impedance Analysis (BIA) method. The data was analyzed on 261 adult Indian women (25-45 years). The results from Pearson's correlation coefficient (r) between anthropometric indices and BF% showed that FMI was highly correlated with BF% (r=0.965; p<0.0001) followed by BMI (r=0.951; p<0.0001) and FFMI (r=0.848; p<0.0001). The single linear regression analysis showed that 93.1% variation in FMI, 90.4% variation in BMI and 71.9% variation in FFMI can be attributed due to BF%. The Receiver Operating Characteristic (ROC) curve analysis showed that at ≥30% BF% as a surrogate method for obesity, the BMI cutoff corresponds to 20.3 kg/m2 (AUC: 0.979; p<0.0001). While BF% ≥35% as criteria for obesity, the BMI cutoff was found to be 23.7 kg/m2 (AUC: 0.982; p<0.0001). From the statistical analysis, it was seen that FMI is the best indicator as compared to BMI and FFMI. The FMI was found to be more sensitive and specific to BF% followed by BMI and FFMI. Based on the results, it can be concluded that FMI can be appropriately used in field setting but the BMI is the preferred indicator for assessing obesity because the calculation of BMI using height and weight is much easier than assessing Fat Mass and Fat Free Mass. The study also concluded that to accurately identify the obese individuals, more specific and sensitive indicator for measuring BF% needs to be applied, i.e. FMI.Conclusion: TIPs improved the nutritional status of pregnant women in the study area. TIPs strategy could be further explored on larger sample representing different socio-cultural and geographical areas.

ssrishti73@live.com

J Nutr Food Sci
ISSN:2155-9600 JNFS, an open access journal

Clinical Nutrition 2016
December 08-10, 2016

Volume 6, Issue 8 (Suppl)

Page 74