Title : **Abdominal Adiposity, Markers of Inflammation and Lipid profile**

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Keywords : *Adiposity, inflammation, Interleukin-6 (IL-6), high sensitivity C - reactive protein hs-CRP), White blood cell count.*

Introduction:

Obesity is considered a state of low grade inflammation with adipose tissue being the main site of production of inflammatory markers. Inflammatory markers, body lipid profile and white blood cell count can predict future risk of obesity associated non communicable diseases. However, reports in the literature regarding association of obesity with body lipid profile, inflammatory markers and white blood cell count in Asian Indians, particularly in women is limited. Therefore, we conducted the study to examine the association between selected indicators of obesity with inflammatory markers i.e. high sensitivity C-reactive protein (hs-CRP), Interleukin-6, white blood cell count (WBC) and lipid parameters in women residing in urban slums of Mumbai city.

Methodology:

We conducted a cross-sectional study on 1500 apparently healthy women for anthropometry and studied biochemical parameters for 176 women aged 21-45 years. Participants were selected by purposive and snowball sampling from urban slums across Mumbai city. Weight, height, waist circumference and hip circumference were measured. BMI and waist hip ratio (WHR) was calculated. Serum inflammatory markers were analysed using Enzyme Linked Immunosorbent Assay (ELISA). Serum lipid parameters (total cholesterol, triglyceride, high density lipoprotein and low density lipoprotein) were estimated using automatic biochemistry analyser while, WBC count was obtained using an automated cell counter. SPSS software (version 20) was used for data analysis.

Results:

Overall, more than half (59%) of the participants were overweight and obese with mean BMI 24.6± 5.21 kg/m^2. With waist circumference, abdominal obesity was noted in 38.2% of women while, 40.6% women had WHR ≥ 0.80. Abdominal adiposity showed an effect on markers of inflammation as well as lipid parameters. Waist circumference showed a significant positive correlation with all the markers of inflammation i.e. hs-CRP (r=0.425, p=0.0), IL-6 (r=0.327, p=0.003), WBC count (r=0.674, p=0.0) and also with LDL cholesterol (r=0.20, p=0.008). WHR correlated significantly with hs-CRP (r=0.235, p=0.003) and IL-6 (r=0.426, p=0.00) and with lipid parameters particularly LDL cholesterol (r=0.216, p=0.004) and triglycerides (r=0.179, p=0.017). Overall adiposity i.e. BMI significantly and positively correlated with hs-CRP (r=0.421, p=0.0), WBC (r=0.026, p=0.0) and total cholesterol (r=0.152, p=0.04). Amongst inflammatory markers hs-CRP significantly correlated with IL-6 (r=0.452, p=0.00) and WBC (r=0.273, p=0.0).

Conclusion:

Overweight and obesity was seen to be prevalent in apparently healthy women living in urban slums of Mumbai. BMI, waist circumference and waist hip ratio showed significant correlation with lipid parameters particularly with total cholesterol, LDL cholesterol and triglycerides as well as with hs-CRP, IL-6 and WBC; thus supporting that adiposity is associated with higher level of inflammatory markers.

References:

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