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OBJECTIVE: The association between Metabolic Syndrome (MetS) and erectile dysfunction (ED) is bidirectional. Inflammatory mediators from the visceral fat induce oxidative damages in the penile microvasculature resulting in ED. Waist circumference (WC) is not a reliable indicator of visceral fat as it includes subcutaneous fat also. Greater prevalence of MetS in Asian men compared to African-American men with the same WC is due to the relatively higher levels of visceral fat in them. Visceral Adiposity Index (VAI) and Lipid Accumulation Product (VAP) are novel indices that include functional parameters along with anthropometric parameters and gives better assessment of visceral adipose dysfunction. The purpose of the study is to investigate the potential link between these novel indices and ED severity.

DESIGN: Observational Cross-sectional study.

MATERIALS AND METHODS: In this study, ED patients were divided into mild ED group (score >11) and severe ED group (score ≤11) based on International index of Erectile Function-5 scores. WC, Body Mass Index (BMI) and lipid profile were obtained and VAI and LAP were calculated using formulas,

\[ VAI = WC/39.68 + (1.88 \times BMI) \times triglycerides/1.03 \times 1.31/ \text{high density lipoprotein} \]
\[ LAP = [WC - 65/\text{triglycerides}] \times 1.03 \]

Mean, standard deviation and p values were calculated using appropriate formulas and p value <0.05 was accepted as statistically significant.

RESULTS: Of 116 men included in the study, 60 had mild ED and 56 had severe ED. Mean age was 51.83 ± 6.2 for mild ED group and 52.16 ± 5.8 for severe ED group. Mean VAI was statistically significantly higher in severe ED group compared to mild ED group (8.45 ± 2.33 vs 4.75 ± 1.52; p < 0.001). Mean LAP was also significantly higher in severe ED group (89.42 ± 31.48 vs 52.21 ± 29.96; p < 0.001). Interestingly, difference in WC(95.5 ± 9.5 vs 98.5 ± 8.5; p = 0.146) and BMI(26.48 ± 3.72 vs 24.67 ± 4.15; p = 0.363) was not statistically significant among two groups.

Mean serum estradiol level was found to be significantly higher in the severe ED group compared to mild ED group (11.58 ± 6.23 vs 8.5 ± 3.72; p = 0.001). Parental consanguinity was prevalent in 15.7% of the patients, while the percentage of consanguineous marriages was 31.6%

CONCLUSIONS: VAI and LAP have stronger correlation with ED severity than single anthropometric tools. Severe ED patients have higher serum estradiol level compared to mild and moderate ED patients due to higher visceral fat and VAI. Considering the simplicity and reliability, these novel indices should be included in the evaluation of obese ED patients.