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Medicine

# BIOCHEMICAL PARAMETERS IN PATIENTS WITH METABOLIC SYNDROME ATTENDING DEPARTMENT OF GENERAL MEDICINE, JAYAROGYA HOSPITAL, GWALIOR, MADHYA PRADESH, INDIA

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**ABSTRACT** The epidemiologic progress, where the weight of persistent problems like metabolic syndrome is rising, is presently happening in agricultural nations. Until now, no examination has been finished to exhibit the commonness of metabolic syndrome among Jayarogya College Showing Hospital short term patients. To learn the commonness of metabolic syndrome and related factors among grown-up (>20 years) patients, this study was planned. This study examined the relationship between epicardial adipose tissue thickness and biochemical markers in patients with metabolic syndrome seen at Jayarogya Hospital in Gwalior, Madhya Pradesh, India's Branch of General Medication. The objective of the review was to measure the strength of this connection to understand metabolic syndrome better.

**KEYWORDS :** Biochemical Parameters, Tissue, Metabolic Syndrome, Jayarogya, Hospital

## INTRODUCTION

Instinctive weight, dyslipidemia, hyperglycemia, and hypertension are parts of the metabolic syndrome, which has arisen as one of the greatest worldwide medical conditions. An issue significantly increases the possibility gaining type 2 diabetes and duplicates the gamble of creating cardiovascular illness (CVD). The principal pathophysiology is believed to be associated with insulin opposition and stomach heftiness.

Eventually, metabolic syndrome is significant in light of the fact that it distinguishes individuals who are at a high gamble for both sort 2 diabetes mellitus (DM) and cardiovascular illness (CVD). In this manner, many specific gatherings have endeavored to foster analytic norms. A World Wellbeing Association (WHO) diabetic board made the underlying endeavor in 1999 and proposed a definition that could be changed as new proof opened up. The fundamental parts of the measures included diabetes or its substitutions, unfortunate glucose resilience, or insulin obstruction. Moreover, somewhere around two of the accompanying circumstances — hypertension (BP), hyper triglyceridemia, low HDL cholesterol, (not entirely set in stone by abdomen perimeter or weight file (BMI)), and microalbuminuria — were considered.

The European Gathering for the Investigation of Insulin Opposition then refreshed the WHO standards by barring patients with diabetes, requiring the presence of hyperinsulinemia, and indicating that the estimation of corpulence be midriff outline (with various shorts for guys and females).

The US Public Cholesterol Schooling Project presented Grown-up Treatment Board III in 2001 as an alternate technique that zeroed in on CVD risk. Supporting clinical finding of high-risk individuals was of specific pertinence. This technique was less glossocentric than the definition from WHO and the European Gathering for the Investigation of Insulin Opposition, which just required the presence of any three of the accompanying five elements: focal corpulence (midriff periphery > 102 cm [for men] or > 88 cm [for women]), raised circulatory strain (BP > 130 mmHg systolic or > 85 mmHg diastolic or > explicit medicine), raised fatty substances (TG > 150 mg/d3,4

### Review Of Litreature

Kumar et al. led a hospital-based concentrate in Gwalior, India, to research the biochemical boundaries in patients with metabolic syndrome. The scientists assessed different biochemical markers including fasting blood glucose, lipid profile, and liver capability tests in patients determined to have metabolic syndrome. The review tracked down huge anomalies in these boundaries, featuring the significance of early identification and the board of metabolic syndrome to forestall related difficulties.

Chouhan et al. researched the biochemical profile of patients with metabolic syndrome in focal India. The review included evaluations of lipid profile, fasting blood glucose, and liver capability tests. The specialists noticed critical adjustments in these biochemical boundaries, accentuating the effect of metabolic syndrome on metabolic dysregulation and related wellbeing chances. The discoveries give significant experiences into the biochemical changes happening in people with metabolic syndrome.

Sharma et al. investigated the relationship between biochemical boundaries and metabolic syndrome in patients going to a tertiary consideration hospital in Gwalior, India. The review explored different biochemical markers, including lipid profile, fasting blood glucose, and liver capability tests. The discoveries uncovered huge connections between's these boundaries and metabolic syndrome, highlighting the significance of checking these markers for early discovery and the executives of the syndrome.

### Research Methdology

This quantitative, cross-sectional review's objective was to decide if there was any connection between's the thickness of the epicardial adipose tissue and any biochemical factors in patients with metabolic syndrome getting treatment at the Jayarogya Hospital in Gwalior, Madhya Pradesh, India.

The researcher employed statistical methods and the quantitative paradigm to address the problems raised in this study. Retrospective data gathered from a variety of sources made available by Google Scholar and Pubmed, both of which are freely accessible online from their respective websites, was used to solve the research issues.

### Population

In this study, the associations between the study variables and males and females who visited IPD across all age groups were investigated. Thus, the entire IPD patient population at Jayarogya Hospital in Gwalior, Madhya Pradesh, India, served as the study's target group.

Women in Indian populations are more likely to have metabolic syndrome than men, with rates ranging from 8% to 46% (India). This emphasizes the necessity of studies that enhance elderly people's quality of life.

### Sampling and Sampling Procedures

All patients with metabolic syndrome who visited the general medicine department at the Jayarogya Hospital in Gwalior were taken into consideration.Because of an absence of pertinent example size estimation strategies, a sum of 100 patients were chosen to partake in this study in light of the fact that the populace is obscure because of an absence of writing on the pervasiveness of metabolic syndrome in focal India.

### Hypothesis

**H1:** In patients with metabolic syndrome who are seen at the

Jayarogya Hospital in Gwalior, Madhya Pradesh, India's Department of General Medicine, there is no statistically significant correlation between the thickness of the epicardial adipose tissue and fasting blood sugar.

**H2:** In patients with metabolic syndrome visiting the Jayarogya Hospital's Department of General Medicine in Gwalior, Madhya Pradesh, India, there is a statistically significant correlation between the thickness of the epicardial adipose tissue and fasting blood sugar levels.

## ANALYSIS AND RESULT

This quantitative, cross-sectional review's objective was to decide if there was any association between the thickness of the epicardial adipose tissue and any biochemical factors in patients with metabolic syndrome who were getting treatment at the Jayarogya Hospital in Gwalior, Madhya Pradesh, India.

### Data Collection

The data was assembled from people with metabolic syndrome who were found in the General Medication division at Jayarogya Hospital.Epicardial edipose tissue thickness, fasting glucose, all out cholesterol, fatty substance, HDL-C, and LDL-C were the review factors. 100 patients of information were assembled.Tables 1 contain the segment subtleties of the 100 review members. The typical age of the review subject examples was 55.69 years old (standard deviation: 13.74 years). The most established member in the review was 80 years of age, and the most youthful was 20. Male subjects made up 57% of the complete populace, while female subjects made up 43%.

To sum up the information for the review factors, clear insights were first gained prior to doing inferential measurements to respond to the exploration inquiries of the review. Genuine fasting glucose, all out cholesterol, fatty oil, HDL-C, LDL-C, and thickness of the epicardial edipose tissue were among the review factors. The mean and standard deviation were remembered for clear insights. Tables 2 and 3 give rundowns of these.

**Table 1:** Distribution of patients by socio-demographic characteristics

| Characteristics | Number | Percentage |
|---|---|---|
| Sex | | |
| Male | 57 | 57% |
| Female | 43 | 43% |
| Total | 100 | 100% |
| Mean age (Years) | 55.69 SD ± 13.74 | |
| Age groups (years) | | |
| 20-39 | 10 | 10% |
| 40-49 | 19 | 19% |
| 50-59 | 27 | 27% |
| 60-69 | 27 | 27% |
| ≥ 70 | 17 | 17% |
| BMI (kg/m2) | | |
| < 18.5 | 0 | 0% |
| 18.5 and 24.9 | 24 | 24% |
| 25 and 29.9 | 25 | 25% |
| ≥30 | 50 | 50% |
| Mean height (all sex) | 164.38 ± 9.14 | |
| Mean weight (all sex) | 78.53 ± 10.81 | |
| Mean waist circumference (male) | 92.95 ± 13.37 | |
| Mean waist circumference (female) | 99.98 ± 12.99 | |

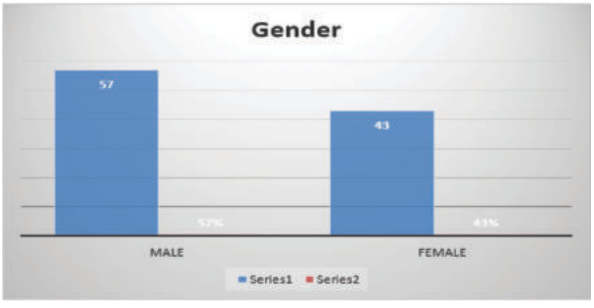


**Figure 1:** Distribution of patients by socio-demographic characteristics

**Table 2:** Means and standard deviation of epicardial adipose tissue thickness of patients with metabolic syndrome by age and sex

| Parameter | Age groups | Sex | |
|---|---|---|---|
| Mean Epicardial adipose tissue thickness (mm) | Age Group | Male | Female |
| | 20-39 | 4.17 ± 0.98 | 3.75 ± 1.50 |
| | 40-49 | 5.00 ± 1.25 | 6.44 ± 1.89 |
| | 50-59 | 6.00 ± 2.03 | 6.36 ± 1.91 |
| | 60-69 | 6.70 ± 1.75 | 7.58 ± 1.31 |
| | ≥ 70 | 6.70 ± 1.64 | 6.86 ± 1.86 |
| | Total | 5.95 ± 1.86 | 6.56 ± 1.93 |
| | All sex | 6.21 ± 1.89 | |

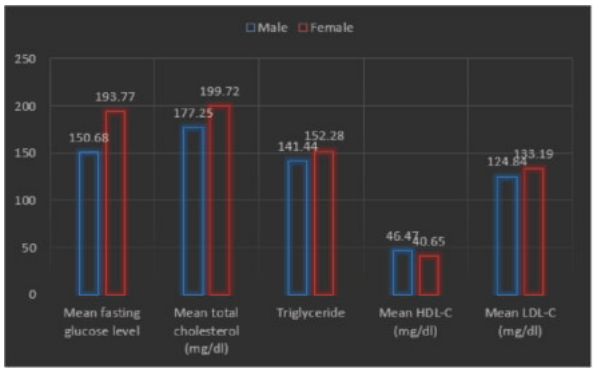


**Figure 2:** Various biochemical markers in metabolic syndrome patients in men and women are compared

**Table 3:** Means and standard deviations of biochemical parameters of patients with metabolic syndrome by age and sex

| Biochemical parameter | Age groups | Sex | |
|---|---|---|---|
| Mean fasting glucose level | Age Group | Male | Female |
| | 20-39 | 100.33 ± 15.84 | 122.00 ± 72.17 |
| | 40-49 | 109.20 ± 19.81 | 186.78 ± 55.15 |
| | 50-59 | 160.88 ± 80.34 | 208.73 ± 112.21 |
| | 60-69 | 171.93 ± 55.58 | 203.75 ± 51.59 |
| | ≥ 70 | 174.20 ± 47.69 | 203.14 ± 51.82 |
| | Total | 150.68 ± 61.48 | 193.77 ± 75.05 |
| | All sex | 169.21 ± 70.27 | |

**Table 4:** Thickness of the epicardial adipose tissue and fasting blood sugar in people with the metabolic syndrome

| Correlations | | |
|---|---|---|
| Fasting glucose | | Epicardial adipose tissue thickness (mm) |
| | Pearson Correlation | 0.763** |
| | Sig. (2-tailed)/ p-value | 0.00001 |
| | Sum of Squares and Cross-products | 10123.590 |
| | Covariance | 102.258 |
| | N | 100 |
| **. Correlation is significant at the 0.01 level (2-tailed). | | |

## DISCUSSION

A number of cardiometabolic risk factors are grouped together to form metabolic syndrome (MetS). It is also linked to an increased risk of coronary artery disease. although modified NCEP-ATP III criteria are utilized in Indians, they have limitations because it is unable to distinguish between visceral and subcutaneous fat. Visceral fat cannot be measured with the medical technologies stated in the background due to issues with their availability, risk, expense, and cost. This study looked at the link between the thickness of the epicardial adipose tissue and biochemical markers in patients with metabolic syndrome who were being treated at the Jayarogya Hospital in Gwalior, Madhya Pradesh, India's Department of General Medicine.

### Interpretation and Discussion of Findings

**Patients with metabolic syndrome have an average thickness of their epicardial adipose tissue.**

According to this study, patients with metabolic syndrome have an average epicardial adipose tissue thickness of 6.2 mm (SD 1.89). Males (5.95 1.86) have thicker skin than females (6.56 1.93). The results are most significant among patients between the ages of 60 and

69 (6.70 1.75 for men and 7.58 1.31 for women). This result is consistent with other research, according to which the right ventricle's epicardial adipose tissue can range from 1.8 to 16.5 mm .

**Fasting glucose, total cholesterol, triglycerides, HDL-C and LDL-C mean levels in patients with metabolic syndrome**

In this study, the mean fasting glucose level was 169.21 mg/dl (SD, 70.27). In comparison to men (150.68 61.48), women (193.77 75.05) have a greater level than men. Male patients under the age of 70 (174.20 47.69) and female patients between the ages of 50 and 59 (208.73 112.21) have the greatest findings.

In this study, the mean total cholesterol level was 186.91 mg/dl (SD, 40.42). Males (177.25 38.99) have a lower level than females (199.72 39.60) do. Male patients under the age of 70 (197.90 42.37) and female patients between the ages of 60 and 69 (217.75 33.73) have the greatest findings.

In this study, the mean triglyceride level was 146.10 mg/dl (SD, 21.44). Males had a lower level (141.44 22.68) than females (152.28 1 8.43). Male patients under the age of 70 (156.50 24.49) and female patients between the ages of 60 and 69 (159.00 14.94) have the greatest findings.

In this investigation, the mean HDL-C concentration was 43.97 mg/dl (SD 13.15). Males are more likely to have this level (46.47 13.53) than females (40.65 12.15). The results are most significant among patients between the ages of 20 and 39 (59.83 10.42 for men and 53.50 15.15 for women).

In this investigation, the mean LDL-C concentration was 128.43 mg/dl (SD 17.97). Females (133.19 14.72) have a greater level than males (124.84 19.59) do. Male patients under the age of 70 (135.00 13.81) and female patients between the ages of 60 and 69 (142.33 11.09) have the greatest findings.

All of these findings are consistent with the NCEP expert panel's third report on the identification, assessment, and management of excessive blood cholesterol in adults.

## CONCLUSION

In the ongoing review, patients with metabolic syndrome introducing to the Branch of General Medication at Jayarogya Hospital in Gwalior, Madhya Pradesh, India, were approached to give data on the connection between epicardial adipose tissue thickness and biochemical markers. The review assembled data from 100 people and analyzed factors such fasting glucose, all out cholesterol, fatty oil, HDL-C, LDL-C, and thickness of the epicardial adipose tissue.

The review's outcomes offer significant new understandings of the relationship between the thickness of the epicardial adipose tissue and certain biochemical markers in individuals with metabolic syndrome. The enlightening insights showed how the review subjects were appropriated by sociodemographic factors as age, sex, BMI, level, weight, and midsection circuit. Among guys and females, as well as between age gatherings, there were little changes in the mean epicardial adipose tissue thickness. However, the varieties weren't genuinely huge. The biochemical markers, for example, fasting glucose level, all out cholesterol, fatty oil, HDL-C, and LDL-C, additionally showed contrasts among guys and females as well as across age gatherings. However, no recognizable changes were found. As indicated by the review's discoveries, patients with metabolic syndrome might have a connection between biochemical markers and the thickness of their epicardial adipose tissue.

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