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LALA LAJPATRAI MEMORIAL MEDICAL COLLEGE, MEERUT
Curriculum Implementation Support Programme-II



Certificate of Participation

This is to certify that Dr. Snehlata Verma, Department of

General Medicine, L.C.R.M. Medical College, Meerut has participated in

the Curriculum Implementation Support Programme-II (Online) held from 29 Sept. 2020 to 30 Sept.

2020 at L.C.R.M. Medical College, Meerut under the aegis of the NMC, Regional Centre, Maulana

Mazad Medical College, New Delhi.

For

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Chubbar

Dr. Musharraf Husain

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MEDICAL EDUCATION UNIT

ARMY COLLEGE OF MEDICAL SCIENCES, NEW DELHI, INDIA

CERTIFICATE OF PARTICIPATION



This is to certify that Dr. Suehlata Verma

Dept. of Medicine LRM Medical College Meerut

participated in a CME cum Hands-on-Training Workshop on
'Small Group Teaching Methodologies'

held at The Army College of Medical Sciences, Delhi Cantt. on 01 November 2019

This CME has been accredited with 5 (FIVE) Credit Hours by the Delhi Medical Council
vide letter No. 3189/DMC/CME/16C/2/2019 / dated 07 October 2019

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Certificate of Participation

This is to certify that Dr. Snehalata Verma, Assistant Professor Department of Medicine, LLRM Medical College has participated in Curriculum Implementation Support Program held from 26-06-2019 to 28-06-2019 at the L.L.R.M. Medical College, Meerut under aegis of NC / RC.

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DYSLIPIDEMIA AND INCREASED WAIST CIRCUMFERENCE AS A RISK FACTOR FOR ACUTE CORONARY SYNDROME IN YOUNG PATIENTS

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ABSTRACT

Introduction: Dyslipidemia and Obesity are components of metabolic syndrome placing subjects at risk for cardiovascular and cerebrovascular diseases. It is now considered as both a public health and a clinical problem. Their prevalence varies around the world depending on the age and ethnicity of the populations studied and the diagnostic criteria used in the evaluation. **Aims And Objectives:** To study profile of Dyslipidemia and waist circumference in Young Patients of Acute coronary Syndrome. **Methods:** The study type is cross sectional study. The work was conducted in DEPARTMENT OF MEDICINE, L.I.R.M MEDICAL COLLEGE, MEERUT. A sample size of 120 patients attending medicine OPD/IPD and Cardiology OPD were selected as per criteria. **Results:** Among the study population 100 participants had deranged triglycerides, 47 participants had deranged HDL and 58 participants had deranged waist circumference. **Conclusion:** Among all the components of metabolic syndrome, triglyceride levels was the commonest component elevated (83%). The prevalence of low HDL cholesterol levels was 39% and increased waist hip ratio was 48%.

KEYWORDS

Acute coronary syndrome, Dyslipidemia, Waist Circumference.

INTRODUCTION

Elevated levels of total- and low density lipoprotein cholesterol (TC and LDL-C), elevated levels of triglycerides (TG) and low levels of high density lipoprotein cholesterol (HDL-C) are important risk factors for CAD. Early treatment of hyperlipidemia following acute coronary syndrome (ACS) provides potential benefits. Treating dyslipidemia has clear benefits in the primary and secondary prevention of coronary heart disease (CHD) in both sexes. Obesity is a highly preventable cause of death and an independent risk factor for cardiovascular diseases (CVD). Premature atherosclerotic events have increased in younger individuals.

MATERIAL AND METHODS

The study type is cross sectional study. The work was conducted in DEPARTMENT OF MEDICINE, L.I.R.M MEDICAL COLLEGE, MEERUT. A sample size of 120 patients attending medicine OPD/IPD and Cardiology OPD were selected as per criteria.

A pre-structured Proforma was filled up for the study. Each subject was given a thorough work up for history and physical examination to fulfill the inclusion and exclusion criteria. Routine hematological and biochemical investigations was carried out. The following parameters were measured at the time of enrollment into the study:

Inclusion Criteria:

- Patients who give consent
- Age between 18 to 45 years
- Patients having Acute Coronary Syndrome

Exclusion Criteria:

- Patients on Anti-lipidemic Drugs
- Patients with impaired renal function.
- Cardiomyopathies,
- Patients having thyroid dysfunction.
- Pregnancy

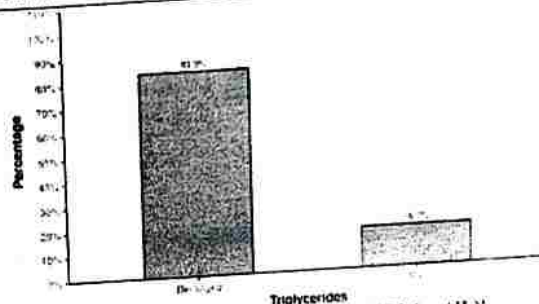
RESULTS

Distribution of the Participants in Terms of 'Triglycerides (mg/dL)'

Table 1: Distribution of Triglycerides

Triglycerides	Frequency	Percentage	95% CI
Deranged	100	83.3%	75.2% - 89.3%
WNL	20	16.7%	10.7% - 24.8%

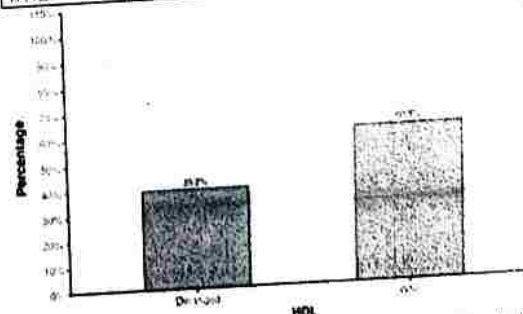
83.3% of the participants had Triglycerides: Deranged. 16.7% of the participants had Triglycerides: WNL.



Distribution of the Participants in Terms of 'HDL (mg/dL)'

Table 2: Distribution of HDL

HDL	Frequency	Percentage	95% CI
Deranged	47	39.2%	30.5% - 48.5%
WNL	73	60.8%	51.5% - 69.5%



39.2% of the participants had HDL: Deranged. 60.8% of the participants had HDL: WNL.

Distribution of the Participants in Terms of 'Waist Circumference (cm)'

Table 3: Distribution of Waist Circumference

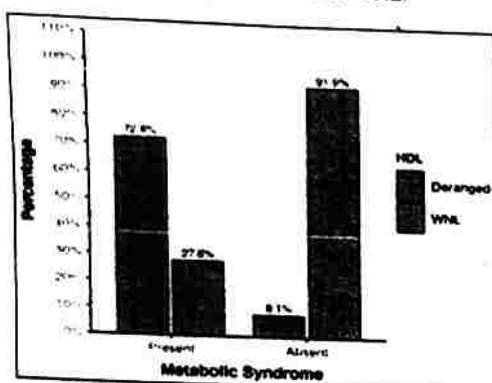
Waist Circumference	Frequency	Percentage	95% CI
Deranged	58	48.3%	39.2% - 57.6%
WNL	62	51.7%	42.4% - 60.8%

48.3% of the participants had Waist Circumference: Deranged. 51.7% of the participants had Waist Circumference: WNL.

Strength of association between the two variables (Cramer's V) = 0.06 (High Association)

Strength of association between the two variables (Bias Corrected Cramer's V) = 0.66 (High Association)

72.4% of the participants in the group [Metabolic Syndrome: Present] had [HDL: Deranged]. 27.6% of the participants in the group [Metabolic Syndrome: Present] had [HDL: WNL]. 8.1% of the participants in the group [Metabolic Syndrome: Absent] had [HDL: Deranged]. 91.9% of the participants in the group [Metabolic Syndrome: Absent] had [HDL: WNL]. Participants in the group Metabolic Syndrome: Present had the larger proportion of HDL: Deranged. Participants in the group Metabolic Syndrome: Absent had the larger proportion of HDL: WNL.

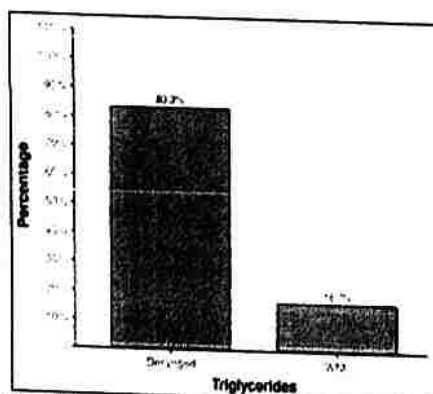


Distribution of the Participants in Terms of 'Triglycerides (mg/dL)'

Table 5: Distribution of Triglycerides

Triglycerides	Frequency	Percentage	95% CI
Deranged	100	83.3%	75.2% - 89.3%
WNL	20	16.7%	10.7% - 24.8%

83.3% of the participants had Triglycerides: Deranged. 16.7% of the participants had Triglycerides: WNL.



Association of 'Triglycerides' in patients with and without Metabolic Syndrome

Table 6: Association between Metabolic Syndrome and Triglycerides

Triglycerides	Metabolic Syndrome		Total	Chi ²	Squared Test P Value
	Present	Absent			
Deranged	54 (93.1%)	46 (74.2%)	100 (83.3%)	7.715	0.005
WNL	4 (6.9%)	16 (25.8%)	20 (16.7%)		
Total	58 (100.0%)	62 (100.0%)	120 (100.0%)		

Chi - squared test was used to explore the association between 'Metabolic Syndrome' and 'Triglycerides'.

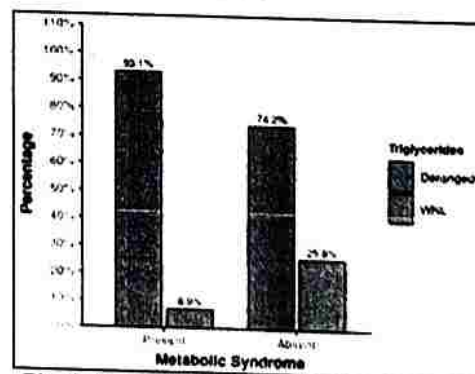
There was a significant difference between the various groups in terms of distribution of Triglycerides ($\chi^2 = 7.715$, $p = 0.005$).

Strength of association between the two variables (Cramer's V) = 0.25 (Low Association)

Strength of association between the two variables (Bias Corrected Cramer's V) = 0.24 (Low Association)

93.1% of the participants in the group [Metabolic Syndrome: Present] had [Triglycerides: Deranged]. 6.9% of the participants in the group [Metabolic Syndrome: Present] had [Triglycerides: WNL]. 74.2% of the participants in the group [Metabolic Syndrome: Absent] had [Triglycerides: Deranged]. 25.8% of the participants in the group [Metabolic Syndrome: Absent] had [Triglycerides: WNL].

Participants in the group Metabolic Syndrome: Present had the larger proportion of Triglycerides: Deranged. Participants in the group Metabolic Syndrome: Absent had the larger proportion of Triglycerides: WNL.



Distribution of the Participants in Terms of 'Waist Circumference (cm)'

Table 7: Distribution of Waist Circumference

Waist Circumference	Frequency	Percentage	95% CI
Deranged	58	48.3%	39.2% - 57.6%
WNL	62	51.7%	42.4% - 60.8%

48.3% of the participants had Waist Circumference: Deranged. 51.7% of the participants had Waist Circumference: WNL.

To Study the Profile of Metabolic Syndrome in Young Patients of Acute Coronary Syndrome

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Abstract: *Introduction:* Metabolic syndrome (MS) is a clinical and biological entity of lipid and nonlipid factors of metabolic origin, which places subjects at risk for cardiovascular and cerebrovascular diseases. *Aims and Objectives:* To study profile of Metabolic Syndrome in Young Patients of Acute coronary Syndrome. *Methods:* The study type is cross sectional study. The work was conducted in DEPARTMENT OF MEDICINE, L. L. R. M MEDICAL COLLEGE, MEERUT. A sample size of 120 patients attending medicine OPD/IPD and Cardiology OPD were selected as per criteria. *Results:* Among the study population 58 participants had Metabolic Syndrome and 62 participants did not have Metabolic Syndrome. *Conclusion:* The prevalence of metabolic syndrome in young patients presented with acute coronary syndrome was found to be around 48.3%. Among all the components of metabolic syndrome, triglyceride levels was the commonest component elevated (83%). The prevalence of other components were low HDL cholesterol levels (39%), increased waist hip ratio (48%) and elevated blood pressure (29%).

Keywords: Metabolic syndrome, Acute coronary syndrome, Coronary Artery Disease

1. Introduction

ACS leads to significant effects on patient's psychology, morbidity, and increased financial burden when it occurs at this young age (1, 2). Young patients with ACS on coronary angiography (CAG) show a relatively increased incidence of single - vessel disease and nonobstructive stenosis. The risk as well as the clinical factor profile and the arterial involvement pattern differ between young and elderly CAD patients (3, 4). Metabolic, genetic, and conventional causes may result in CAD occurring at a younger age in India. ACS in very young adults with age ≤ 30 years is rare (5). In India, the prevalence of acute myocardial infarction (AMI) in this population is between 2 - 10%. (6)

Coronary artery disease (CAD) is the single most frequent cause of death. The atherosclerotic cardiovascular disease is a chronic disorder developing insidiously, and it remains as the major cause of premature death. Importantly, evidence revealing that increased cardiovascular risk starts to develop at a very young age has accumulated over the past decades.

Metabolic syndrome (MS) is a clinical and biological entity of lipid and nonlipid factors of metabolic origin, which places subjects at risk for cardiovascular and cerebrovascular diseases.

2. Material and Methods

The study type is cross sectional study. The work was conducted in Department of Medicine, L. L. R. M Medical College, Meerut. A sample size of 120 patients attending medicine OPD/IPD and Cardiology OPD were selected as per criteria.

A pre - structured Proforma was filled up for the study. Each subject was given a thorough work up for history and physical examination to fulfill the inclusion and exclusion criteria. Routine hematological and biochemical investigations were carried out. The following parameters were measured at the time of enrollment into the study:

Inclusion Criteria:

- Patients who will give consent
- Age between 18 to 45 years
- Patients having Acute Coronary Syndrome

Exclusion Criteria:

- Patients on Anti - lipidemic Drugs
- Patients with impaired renal function.
- Cardiomyopathies.
- Patients having thyroid dysfunction.
- Pregnancy

3. Results

Distribution of the Participants in Terms of 'BP (mmHg)'

Table 1: Distribution of BP

BP	Frequency	Percentage	95% CI
Deranged	35	29.2%	21.4% - 38.3%
WNL	85	70.8%	61.7% - 78.6%

- 29.2% of the participants had BP: Deranged.
- 70.8% of the participants had BP: WNL.

Association of HbA1c with HRCT Thorax among Diabetic and Non-Diabetic COVID Patients

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Abstract

Introduction and objectives: Diabetes mellitus is a multiorgan disease which is slowly growing as a major disease burden on world health. COVID-19 is an active deadly pandemic that is still threatening human lives. It has been observed that the interaction of these two slow and rapid pandemics together leads to severe mortality and morbidity. The study was done to assess the severity of COVID disease in diabetic and non-diabetic patients according to HRCT severity score and duration of hospital stay.

Methods: This retrospective single centred case control study was conducted in SVBP hospital and LLRM Medical College, Meerut in admitted patients during September 2020 to May 2021 of COVID-19 disease. The calculated sample size came out to be 81. So, 81 COVID positive diabetic patients were enrolled and an equal number of non-diabetic Covid patients were taken as control. In our study, association of HbA1c with CT severity score and their duration of hospital stay was studied.

Results: It was observed that the HRCT severity score was more in the uncontrolled than in controlled diabetic group of Covid patients. The association of HRCT severity score with various HbA1c levels among diabetic and non-diabetic patients was significant with p value of 0.029. Similarly, the duration of hospital stay was associated with HRCT severity score significantly. HRCT severity score was raised in both the groups diabetic and non-diabetic with significant p value of 0.001 and 0.008 respectively.

Conclusion: COVID-19 disease with diabetes is a lethal combination. Association of HRCT severity score is significantly associated with increasing HbA1c levels rather than diabetes status. Poor glycaemic control can lead to severe disease related complications. Duration of hospital stay was significantly associated with HRCT severity score among both diabetic and non-diabetic Covid patients. Thus, in known diabetic patients with strict glycaemic control, early CT-imaging of the disease severity can have better outcomes in COVID pandemics.

Key words: COVID-19 disease, diabetes mellitus (DM), HRCT severity score.

Introduction

COVID-19 disease was a pandemic caused by the novel SARS-COV-2 discovered in December 2019 in Wuhan, China. COVID-19 infection was highly contagious and communicable which had spread around the world, within weeks. Amongst COVID-19 infected patients, majority of the patients had milder symptoms, but few patients had severe illness including respiratory distress as major killer. COVID-19 disease caused huge death tolls¹ in elderly and co-morbid patients. In India, from 3 January 2020 to 6:07 pm CEST, 31 May 2023, there have been 44,990,278 confirmed cases of COVID-19 with 5,31,867 deaths, reported to WHO². Diabetes mellitus is a chronic multi-system disease, which is caused by inadequate or inappropriate insulin synthesis and metabolism in the body. The resultant hyperglycaemia causes serious damage to various organ systems of the body and results in dysfunction of the immune system. This leads to failure of protection from pathogenic invasions and infections³. Diabetes mellitus forms a major portion

of non-communicable disease and causes large mortality and morbidity worldwide. Diabetic people are more likely to develop serious complications with COVID-19 infection⁴. Therefore, this study was done to see the association of HRCT severity score in COVID-19 patients with HbA1c. HRCT thorax is one of the main diagnostic tools for COVID-19 severity grading as well as prognosis. On HRCT thorax scan, infected individuals generally showed a multifocal or mono-focal involvement of ground-glass opacity (GGO)⁵. HRCT thorax had been widely accepted for prognostication of COVID-19 pneumonia⁶. Several remarkable chest CT findings had been reported in more than 70% of RT-PCR test-proven COVID-19 cases, including ground-glass opacities, vascular enlargement, bilateral abnormalities, lower lobe involvement, and posterior predilection⁷. The severity of the lung involvement on the CT correlates with the severity of the disease. HRCT thorax imaging severity scores of >18 have been linked to higher risks of death and have been found to be better predictor of death among diabetic COVID-19

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Skin and soft tissue infections.

Sensory neuropathy, atherosclerosis and hyperglycemia are the risk factors for the development of skin and soft tissue infections in diabetic patients. *S. aureus* and *S. pyogenes* are common causes.

Necrotising fasciitis is a deep-seated, life-threatening infection of subcutaneous tissue with progressive destruction of fascia, fat and muscle. Clinically there is pain of the portion of the skin along with anaesthesia of overlying skin. Violaceous discoloration of the skin that evolves into vesicles and bullae, crepitus, soft tissue gas seen in radiograph or C.T. management is done by surgical debridement and antibiotics.

Diabetic foot infection:

It is the most common and most important soft tissue infection in diabetic patients, because it is related to the peripheral neuropathy and compromised microvascular circulation which limits the access to the phagocytic cells to the infected area and poor concentration of antibiotics in the affected area. Diabetic foot is complicated by chronic osteomyelitis, gas gangrene, amputation and death. The spectrum of foot infection ranges from superficial cellulitis to chronic osteomyelitis.

Microvascular disease limits the blood supply to the superficial and deep structures. Pressure from ill-fitting shoes, trauma and compromised blood supply predispose foot to infection. Infection may involve the skin, soft tissues, bone or all the structures.

Clinical presentation of diabetic foot infections

Cellulitis- it is tender, erythematous non raised skin lesion on the lower limb which may be accompanied with lymphangitis.

Deep skin and soft tissue infections- patient is acutely ill with painful induration of the limb.

Acute osteomyelitis- patient has bone pain, fever and adenopathy.

Chronic osteomyelitis- patient has fever, foul discharge, pain. There is no lymphangitis. Deep penetrating ulcer and sinuses on the plantar surface of the foot.

Diagnosis of foot infections

1. Thorough examination to evaluate the patients vascular and neurological status.
2. Radiological examination including doppler ultrasonography, transcutaneous oximetry, MR angiography.
3. CT Scan, MRI and gallium 67 scan for soft tissue and bone evaluation.
4. Exploration of ulcer to determine its depth and presence of sinus tract.
5. Deep tissue specimen for culture and susceptibility testing.

Management and treatment

1. Control blood sugar and maintain proper hydration.
2. Evaluation of neuropathy and vasculopathy.
3. Mild cases are treated with debridement of the necrotic tissue and use of antibiotics according to the causative bacteria.
4. Moderate to severe cases may require amputation and hospitalization.

Prevention

1. Prevention is the corner stone of the diabetic foot care.
2. It is multidisciplinary approach including family physician, social worker, home care nurse and specialist.
3. Patient education about the control and complication of diabetes.
4. Blood sugar should be controlled promptly, weight reduction.
5. Proper foot care, using protective footwear and pressure reduction.
6. Self and family member examination of foot.

Diabetes and Infections

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Introduction

Diabetic patients are predisposed to infections, and infections are the major cause of mortality in the diabetic patients. Nearly half of all diabetic patients had at least one hospitalization or outpatient visit for infections compared to non-diabetic group.

Increased susceptibility to infections is mainly due to host related factors like vascular insufficiency, sensory peripheral neuropathy, autonomic neuropathy and hyperglycaemia and metabolic derangements leading to immune defects. Diabetic patients are prone to develop skin and mucosal colonization with *S. aureus*, particularly MRSA. Colonization leads to skin infection and transient bacteraemia which may result in distal sites infection such as damaged muscle. Surgical site infections associated with postoperative hyperglycaemia which is related to deleterious effect on chemotaxis, phagocytosis and adherence to granulocytes.

Common infections in diabetic patients are;

- Upper and lower respiratory tract infections
- Periodontal infections
- Genitourinary infections
- Abdominal infections
- Skin and soft tissues infections and diabetic foot

Upper respiratory tract infections:

Invasive (malignant) otitis media and rhino cerebral mucormycosis are potentially life-threatening infections.

Invasive otitis media is caused by *Pseudomonas aeruginosa*. It slowly invades from the external canal into the adjacent soft tissues, mastoid and temporal bone and eventually spreads across the base of the skull. Patient presents with complaints of severe pain, otorrhea, hearing loss and cellulitis and edema of ear canal. CT scan and MRI is done for the diagnosis of this condition and treatment is done by surgical debridement and parenteral antibiotics.

Rhinocerebral mucormycosis is a life-threatening condition and it is caused by *Rhizopus*, *Aspergillus* and *Mucor* species. Patient complaints of facial and ocular pain and nasal stuffiness. Diagnosis is done by biopsy of necrotic tissue and MRI. This condition is treated by surgical debridement and prolonged course of amphotericin B.

Lower respiratory tract infections include pneumonia and influenza. Diabetic patients are four times more susceptible to die from pneumonia and influenza than non-diabetic patients. Common gram positive organisms causing pneumonia are *S. aureus* and *S. pneumoniae*. Whereas enterobacteria and legionella are common gram negative organisms causing pneumonia in diabetic patients. Influenza and mycobacterium are also common as compared to non-diabetics. Therefore, influenza and pneumococcal vaccine is recommended in diabetics.

Genitourinary infections:

Genitourinary infections range from asymptomatic bacteriuria to emphysematous pyelonephritis.

Symptoms and signs are similar to those in non diabetics. Diagnosis is made by classical signs of flank mass and flank pain and patient often complains of burning micturition. Urine culture often shows the growth of the organism and is done prior to the administration of antibiotics. Antibiotics and other supportive measures are the mainstay of the treatment however nephrectomy is needed in emphysematous pyelonephritis.

Abdominal infections:

Diabetic patients are more prone to develop acute fulminant cholecystitis. Gram negative bacilli are the common culprits that give rise to this condition. Gall stones and peritonitis may be present along with the cholecystitis. Management is done by cholecystectomy and broad spectrum antibiotics.

3 weeks hospital stay, 2 (16.67%) patients had mild HRCT score, 7 (58.33%) patients had moderate HRCT score and 3 (25.0%) patients had severe HRCT score. There is an increase in duration of hospital stay as per increasing grade of HRCT severity scores in non-diabetic COVID patients. The association of this HRCT severity score with duration of hospital stay in non-diabetic COVID group is highly significant with p value of 0.008.

Discussion

Compared with the non-diabetic patients with COVID-19, the diabetic patients with COVID-19 had poorer prognosis and higher mortality. The study of clinical and imaging characteristics of these patients is helpful to deepen our understanding of the mechanism of critical conditions of the COVID patients with diabetes. It also helps to promote its early clinical diagnosis and better treatment.

The objective of this case control study was to assess the severity of COVID-19 disease in diabetic patients based on HRCT severity score and HbA1c levels. Most of the patients in diabetic group belonged to the age group of (26 - 50 years), i.e., 41 cases (50.6%) and in non-diabetic group most of the patients also belonged to the age group (26 - 50 years) 35 (43.2%) cases. This difference between age groups in this study was significant (with p value of 0.006), i.e., our study had more people of the age above 26 years. Statsenko *et al* stated with univariate analysis, that the risk of the non-mild COVID-19 was significantly higher ($p < 0.05$) in midlife adults and older adults compared to young adults¹⁴.

In our study, males are more than females in both diabetic and non-diabetic group.

This difference between genders was non-significant (with p value of 0.624). Similar study by Tabassum *et al* 2022 had an increased number of males (85.8%) and lesser number of females (14.2%)¹³. Further studies are needed involving an equal number of females and explore the outcomes in females. Statsenko *et al* showed increased severity in male¹⁴. Similar findings were seen in our study however more studies needed to be done before coming to any conclusion.

Among 81 patients of the diabetic group, (24.7%) 20 patients were controlled diabetic, i.e., with HbA1c level 6.7 - 8% and (75.3%) 61 cases were uncontrolled diabetic with HbA1c level > 8%.

Among 61 uncontrolled diabetic COVID patients, 13 (21.31%) patients were found to be having severe HRCT findings (i.e., score 16 - 25). Whereas 1 (5%) patient out of 20 controlled COVID diabetic patients had severe HRCT finding.

Among the control group, 2 (6.67%) patients out of 30 pre-diabetic COVID patients and 4 (7.84%) patients out of 51 non-diabetic COVID patients. This shows that poor glycemic control status increases the risk and severity of COVID disease as compared to well controlled diabetics. Thus, it is an imperative to have strict glycemic control during COVID pandemics.

A similar finding was seen by Rangankar *et al*, who had HRCT severity score of 220 patients, 41 patients had diabetes and 179 patients were non-diabetics. Out of 41 diabetics, severe form of COVID disease on HRCT severity score was found in 12 patients (29.3%), moderate disease in 16 patients (39%) and milder disease in 13 patients (31.7%). COVID disease was severe in 12 diabetic patients (29.3%) as compared to 20 non-diabetic patients (11.7%)¹⁵.

SARS COV-2 has shown to down regulate the ACE2 protein in diabetics and this might be the cause of poor clinical outcome in diabetes patients¹⁶.

In our study, out of 14 diabetic COVID patients, 9 patients having severe HRCT score stayed for more than 3 weeks, 3 (50%) patients with moderate HRCT score stayed for up to 2 weeks, 2 patients with mild CT score stayed for up to 1 week. Whereas out of 6 non-diabetic COVID patients 3 patients having severe HRCT score stayed for more than 3 weeks, 3 (50%) patients having moderate CT score stayed for up to 2 weeks. This difference was significant with p value 0.001 and 0.008 respectively.

A similar study by Saeed *et al*, which showed 3.9% and 4.7% COVID patients with severe and moderate HRCT score respectively, had a hospital stay of more than 16 days¹⁷.

Conclusion

COVID-19 is a lethal viral disease that infects and damages the lung parenchyma. The HRCT severity score of COVID-19 patient increases with poor diabetic control, i.e., HbA1c more than 8%. The association of HRCT severity scores with HbA1c level was very significant. It was found that the poor glycemic control was significantly associated with the disease severity as well as hospital stay. So, strict glycemic control should be observed during such COVID pandemics. The duration of hospital stay of diabetic COVID-19 patient increases with rising HRCT scores and this association was statistically significant. Thus, early HRCT imaging and scoring can prove useful in prognosticating, triaging and determining duration of hospital stay.

Limitations of this study: Small sample size is the limitation of this study. It should be done on larger sample size too.

Conflict of interest: The author has no conflict of interest

but this difference between genders was non-significant (with p value of 0.624).

Table I: HRCT severity score according to HbA1c of the diabetic COVID patients and non-diabetic COVID patients.

	HRCT SEVERITY GRADING							
	Mild score		Moderate score		Severe score		Total	p-value
COVID patients	No.	%	No.	%	No.	%	No.	
Non-diabetic (HbA1c < 5.4%)	25	49.02%	22	43.14%	4	7.84%	51	0.029
Pre-diabetic (HbA1c 5.4 - 6.7%)	20	66.67%	8	26.67%	2	6.67%	30	
Controlled diabetic (HbA1c 6.7 - 8%)	7	35.00%	12	60.00%	1	5.00%	20	
Uncontrolled diabetic (HbA1c > 8%)	23	37.70%	25	40.98%	13	21.31%	61	
Total	75		67		20		162	

Table I shows that, out of 81 diabetic COVID cases 20 patients, i.e., 24.69% patients had controlled diabetes that is HbA1c between 6.7 - 8% and 61 patients (75.31%) had uncontrolled diabetes with HbA1c more than 8%.

Out of 20 controlled diabetic COVID patients, 7 patients (35%) had mild HRCT score, 12 patients (60%) had moderate HRCT score and 1 patient (5%) had severe HRCT score.

Out of 61 uncontrolled diabetic COVID patients, 23 (37.7%) patients had mild HRCT severity score, 25 (40.98%) patients had moderate severity score and 13 (21.31%) patients had severe severity score.

It also shows out of 81 non-diabetic COVID control patients 51 (62.96%) patients were non-diabetic that is HbA1c < 5.4% and 30 patients (37.04%) were pre-diabetic with HbA1c 5.4 - 6.7%.

Out of 51 non-diabetic COVID patients, 25 (49.02%) patients had mild HRCT score, 22 (43.14%) patients had moderate HRCT score and 4 (7.84%) patients had severe HRCT score.

Out of 30 pre-diabetic COVID patients, 20 (66.67%) patients had mild HRCT severity score, 8 (26.67%) patients had moderate severity score and 2 (6.67%) patients had severe severity score.

The association of the HRCT severity score with various HbA1c level patient groups came out as statistically significant with p value of 0.029.

Table II shows that, out of 81 diabetic COVID cases, 30 (37.04%) patients had a Mild HRCT severity score that is less than 8/25, 37 patients (45.67%) had moderate HRCT severity score with score 9 - 16/25, 14 (17.28%) patients

had severe HRCT severity scores.

Table II: Shows association of duration of hospital stay with HRCT severity score in diabetic and non-diabetic COVID patients.

Duration of hospital stay in	HRCT Severity grading							
	Mild		Moderate		Severe		Total	p-value
COVID patients	No	%	No	%	No	%	No	
Diabetics								
1 week	21	80.77%	3	11.54%	2	7.69%	26	0.001
2 weeks	8	23.53%	23	67.65%	3	8.82%	34	
>3 weeks	1	4.76%	11	52.38%	9	42.86%	21	
Total	30		37		14		81	
Non-diabetics								
1 week	17	80.95%	4	19.05%	0	0.00%	21	0.008
2 weeks	26	54.17%	19	39.58%	3	6.25%	48	
>3 weeks	2	16.67%	7	58.33%	3	25.00%	12	
Total	45		30		20		162	

Out of 26 diabetic COVID patients, who had 1 week hospital stay, 21 (80.77%) patients had mild HRCT score, 3 (11.54%) patients had moderate HRCT score, 2 (7.69%) patients had severe HRCT score.

Out of 34 diabetic COVID patients, who had 2 weeks hospital stay, 8 (23.53%) patients had mild HRCT score, 23 (67.65%) patients had moderate HRCT score and 3 (8.82%) patients had severe HRCT score.

Out of 21 diabetic COVID patients, who had more than 3 weeks hospital stay, 1 (4.76%) patient had mild HRCT score, 11 (52.38%) patients had moderate HRCT score and 9 (42.86%) patients had severe HRCT score. There is an increase in duration of hospital stay as per increasing grade of HRCT severity scores in diabetic COVID patients. The association of this HRCT severity score with duration of hospital stay in diabetic COVID group is highly significant with p value of 0.001.

It also shows that out of 81 non-diabetic COVID control patients, 45 (55.56%) patients had a Mild HRCT severity score that is less than 8/25, 30 patients (37.04%) had moderate HRCT severity score with score 9 - 16/25, 6 (7.40%) patients had severe HRCT severity scores.

Out of 21 non-diabetic COVID patients, who had 1 week hospital stay, 17 (80.95%) patients had mild HRCT score, 4 (19.05%) patients had moderate HRCT score, 0 (0.0%) patients had severe HRCT score.

Out of 48 non-diabetic COVID patients who had 2 weeks hospital stay, 26 (54.17%) patients had mild HRCT score, 19 (39.58%) patients had moderate HRCT score and 3 (6.25%) patients had severe HRCT score.

Out of 12 non-diabetic COVID patients, who had more than

"Prevalence of dyslipidemia in retroviral patients on ART (TLE) - "At a tertiary care center" western UP

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Abstract:

Since the discovery of antiretroviral therapy (ART), it has significantly modified the prognosis of individuals infected by the Human Immunodeficiency Virus-1 (HIV), with marked improvement in morbidity and mortality rates worldwide¹. Although the clinical benefits are considerable, the protease inhibitors contained in these antiretroviral regimens produce a lipodystrophy syndrome characterized by changes in body fat distribution, dyslipidaemia, and insulin resistance.² The hyperlipidemia is attributable to increases in very low density lipoproteins (VLDL) and Low density lipoproteins (LDL). Total cholesterol and decrease in HDL. It can produce serious cardiovascular complications including endothelial dysfunction and atherosclerosis.^{3,4}

Aims and objective:-

To see the prevalence of dyslipidemia in retroviral patient, who are on ART and its association with newly diagnosed HIV patient.

Methodology:-

The study was conducted at medicine department L.L.R.M Medical College Meerut. Patients were taken from ART PLUS centre L.L.R.M Medical College Meerut. We classified HIV patients who were on first line ART (TLE regime) for more than 1 year study duration as case and newly registered patient, on their first visit before starting any treatment, during the same period, as control. These patients were interviewed regarding their symptoms. Thorough general examination, anthropometric measurement, CD-4 count and systemic examination, and

all the relevant investigations were done. Information thus collected was tabulated.

Result:-

Out of 142 cases, 90 (63.3%) were male and 52 (36.6%) were female. In control group 48 (52.7%) were male 43 (47.2%). Maximum no of patient both in cases and control group fall in between the range of 18-40 years of age group. On comparing anthropometric parameter (weight, waist hip ratio, and BMI) between cases and control group there were no significant difference found ($p > .05$). On comparing biochemical parameter (total cholesterol, triglyceride, HDL, VLDL) between cases and control group no significant difference were found except in LDL level. Difference in CD4 count in cases and control (cases CD4 538.13 ± 308 , control CD4 856 ± 312.69 , $p < 0.0001$) were found significant.

Conclusion:-

We concluded from our study that patients on ART had high level lipid profile derangement than control group, and difference were statistically significant ($p < 0.014$). We advocate effective life style modification and pharmacological treatment for dyslipidemia in patient on ART.

Key words:- HIV, AIDS, ART, dyslipidemia, LDL, HDL, Total cholesterol.

I. Introduction:-

Since the identification of first cases of HIV/AIDS in June 1981 in Los Angeles, USA, there have been tremendous advances in the field of HIV prevention, diagnosis, care and treatment globally. This global progress is not only limited to identification of newer molecules

followup on patient on ART.

The Mean values of CD4 count among cases were 538.13($\pm$ 308.26) and among control were 856.47 ($\pm$ 44.80). There were significant difference in cd4 count both in cases and control group. A study by Dave et al⁸ showed median CD4 count in ART naïve female patient was 278 (IQR 159,440) and in males 227 (IQR 134, 411), in patient ART median CD4 count in females was 371 (IQR242, 525) and in males 278 (IQR 199, 387) in their study triglyceride level correlates negatively with CD4 count.

On analyzing lipid profile we found that 81.6% among cases and 67% among control group had at least one parameter of lipid profile deranged.

There was an approximately 15% difference in the prevalence of dyslipidemia in patient on ART and in newly diagnose d patient (control group). The relationship between two groups were found statistically significant ($p < 0.05$). A similar study was done by Tadewos et al¹² which included 113 HIV infected patients treated for a minimum of one year with first-line ART regimens and others 113 who had never received ART (Pre-ART group). 82.5% of ART And 76.9% Pre ART patient had at least one laboratory abnormality¹².

There were no significant difference in the level of total cholesterol, triglyceride and HDL level between cases and controls in our study. These findings in cholesterol levels are opposite to a study by Dickson et al¹⁰, which shows the prevalence of total cholesterol (≥ 200 mg/dl) was 51.0% in patients on ART and 9.6% Pre-ART patients ($p < 0.0001$). On comparing HDL levels with Dickson et al¹⁰, which shows prevalence of HDL below 40 mg /dl are not statistically significant between pre ART and ART group. Finding of our study are not in accordance with the findings of Pujari et al¹³, in whose study 18 months treatment with first line ART were associated with significant increase in HDL level.

In our study prevalence of high LDL in cases were 16.19% and in control group were 6.59%. we observed the relation between two was statistically significant ($p < 0.05$). A similar study by Dickson et al¹⁰ which showed LDL-cholesterol ≥ 130 mg/dl occurred in 36.9% ART patients and in 7.7% pre ART patients respectively, with ($p = 0.0001$).

V. CONCLUSION

We can conclude from our study that HIV-infected patients receiving first-line ART have a high

prevalence of lipid profile derangements when compared to those non- treated HIV-infected patients. Uses of first-line ART regimens are significantly associated with atherogenic lipid profiles. Therefore, the findings indicate the need to assess lipid profiles at baseline before initiation of ART treatment and lipid profile monitoring during therapy to monitor any rising trends. Additionally, the results also recommend implementation of well- controlled cohort studies for the evaluation of long-term effects of ART treatment on lipid profiles. We advocate effective lifestyle and pharmacological intervention to prevent and treat dyslipidemia in patient on ART therapy.

References:-

- [1]. Patella FJ Jr, Delaney KM, Moorman AC, Loveless MO, Fuhrer J, Statten GA, Aschman DJ, Holmberg SD. Declining morbidity and mortality among patients with advanced human immunodeficiency virus infection. HIV Outpatient Study Investigators. *N Engl J Med*. 1998; 338: 853-860.
- [2]. Carr A, Samaras K, Burton S, Law M, Freund J, Chisholm DJ, Cooper DA. A syndrome of peripheral lipodystrophy, hyperlipidaemia and insulin resistance in patients receiving HIV protease inhibitors. *AIDS*. 1998; 12: F51-F58.
- [3]. Stein JH, Klein MA, Bellehumeur JH, McBride PE, Wiebe DA, Otvos JD, Sosman JM. Use of human immunodeficiency virus-1 protease inhibitors is associated with atherogenic lipoprotein changes and endothelial dysfunction. *Circulation*. 2001; 104: 257-262.
- [4]. Schillaci G, DeSocio GVL, Pirro M, Savarese G, Mannarino MR, Baldelli F, Stagni G, Mannarino E. Impact of treatment with protease inhibitors on aortic stiffness in adult patients with human immunodeficiency virus infection. *Arterioscler Thromb Vasc Biol*. 2005; 25: 2381-2385.
- [5]. Marins JR, Jamal LF, Chen SY et al. Dramatic improvement in survival among adult Brazilian AIDS patients. *AIDS* 2003; 17: 1675-82.
- [6]. Fang CT, Chang YY, Hsu HM et al. Life expectancy of patients with newly-diagnosed HIV infection in the era of highly

TO STUDY THE EFFECT OF YOGA ON HBA1C, SERUM INSULIN LEVEL AND LIPID PROFILE IN DIABETIC PATIENTS IN A TERTIARY CARE CENTRE

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Abstract

Introduction-Diabetes mellitus is a worldwide health problem predisposing to markedly increased cardiovascular mortality and morbidity. Exercise is a major therapeutic modality in the treatment of diabetes mellitus. Regular physical exercise has been reported to be effective in the prevention and delay of onset of type 2 diabetes, increases insulin sensitivity, and ameliorates glucose metabolism. Yoga has become increasingly popular in Western cultures as a means of exercise and training fitness. The aims of the present study were therefore to investigate the effects of Hatha yoga on HbA1c, Serum insulin level & lipid profile after 3 and 6 months of intervention in patients with type 2 diabetes mellitus.

Material and method- Was a prospective study done in LLRM Medical College Meerut in year 2019-20. 200 patients with type 2DM on T/t were assessed thoroughly with proper history, clinical examination and required investigation. Patients were divided in two groups of 100 patients each.

Group A patients took yoga therapy and antidiabetic drugs.

Group B patients were control group they were diabetic patients on routine anti diabetic treatment who attended our hospital but not practiced yoga.

Both the group were followed for the period of 6 months and were compared in terms of HbA1c, serum insulin levels and lipid profile.

Result- The patients in the yoga group showed a significant improvement in HbA1c level (18.36% reduction from the mean baseline of 10.194; paired t-test p-value<0.001), they also revealed significant improvement in lipid profile. Regarding insulin level also there was significant decrease in both the groups individually (p value <0.001). And although the decrease was more for the yoga group, the mean difference between both the groups was not significant at the end of 6 months(p value =0.86432).

Conclusion- In the present study we found that yoga therapy (in conjunction with conventional drug treatment for diabetes mellitus) is an effective and safe modality for improvement of various clinical and biochemical parameters like HbA1c, total cholesterol serum triglyceride, serum HDL and

LDL- cholesterol in patients of diabetes mellitus..

Table 4:
HbA1c levels at baseline and 6 months

Group	Pre study (baseline) Mean HbA1c (%)	Post study (at 6 months) Mean HbA1c (%)	Mean difference	Difference in percentage	p- value within the group (paired t-test)
Yoga group (Group A)	10.194±1.96	8.185±1.23	-2.009	-18.36%	<0.001
Control group (Group B)	10.229±1.69	8.854±1.72	-1.375	-13.4%	<0.001
P- value (independent t-test)	0.9076	0.0039			

4.) Serum insulin level:

It can be seen from Table 6 that there is a significant reduction of 17.25% (paired t-test p-value < 0.001) in mean serum insulin levels of the patients in the yoga group (Group A) at the end of six months. In the control group patients, there was also statistically significant but lesser change from baseline value (paired t-test p-value < 0.05). It is also evident from the same Table that at baseline, there was no statistically significant difference between the yoga and control groups (independent t-test p-value > 0.05), the difference is also not significant at the end of six months (independent t-test p-value > 0.05). Therefore although there is beneficial impact of yoga on serum insulin level but its not statistically significant as compared to control group.

Table 5
Serum insulin at baseline and 6 months

	BASELINE SERUM INSULIN	SERUM INSULIN AT 6 MONTH	MEAN DIFFERENCE IN %	P VALUE (PAIRED T TEST)
YOGA GROUP	70.021±30.99	57.941±29.04	17.25	<0.001
CONTROL GROUP	70.116±30.36	58.705±28.87	16.27	<0.001
P VALUE (INDEPENDENT T TEST)	0.84775	0.86342		

It can be seen from Table 6 that there is a significant reduction of 19.56% (paired t-test p-value < 0.0002) in mean serum total cholesterol levels of the patients in the yoga group (Group A) at the end of six months. In the control group patients, there was also statistically

Discussion:

The results of our study are consistent with those of the previously done studies. Our study reveals that there is significant decrease in FBS of 35.69% in the patients of the yoga group (Group-A) at the end of six months and also in the control group of 30.07% (paired t-test p-value<0.05). Although the decrease

was significant in both the groups individually and it was more in yoga group but the difference at the end of 6 months between both groups was not statistically significant (p value =0.11472). Same was the result for post prandial blood sugar. The patients in the yoga group showed a significant improvement in HbA1c level (18.36%; paired t-test p-value<0.001), also control group showed reduction of 13.4%; (paired t-test p-value<0.001) at the end of six months. And the mean difference at end of 6 months was statistically significant between both the groups. The patients in the yoga group and control group also revealed significant improvement in lipid profile at the end of six months. Regarding insulin level also there was significant decrease in both the groups individually (p value <0.001). And although the decrease was more for the yoga group, the mean difference between both the groups was not significant at the end of 6 months (p value =0.86432). Can yoga be used as adjunct to standard pharmacological care for effective and safe treatment of diabetic patients? Yoga and meditation have always been an essential part of life in traditional system of treatment but very little authentic research has been done on this. Yogic intervention as an adjunct to usual care appears to be safe and efficacious in improving the clinical and biochemical parameters in diabetics, as revealed by our study and previous studies (Agrawal et al. 2007, Murugeson et al. 2000, Satyanarayan et al. 1992, Singh et al. 2004, Bijlani et al. 2005). With no appreciable side effects and multiple collateral lifestyle benefits, yoga seem safe, is simple to learn, and can be

practiced even by elderly, ill, or disabled individuals. Yoga can play an important role in better control of hyperglycemia in patients on multiple OHAs and better management of prediabetic patients. Requiring little in the way of equipment or Professional personnel, yoga also seems easy and inexpensive to maintain. However, despite yoga's growing popularity and promise as a safe and cost-effective intervention for diabetes mellitus, systematic reviews are lacking. Diabetes mellitus & Metabolic syndrome have a chronic course and studies should be done over longer period of time to demonstrate the effect of yoga therapy on natural history of the disease. We recommend further large scale and multi-centric trials for longer follow up with comprehensive investigative approach to calibrate the benefits of yoga therapy in patients of diabetes mellitus.

Conclusion:

In the present study we found that yoga therapy (in conjunction with conventional drug treatment for diabetes mellitus) is an effective and safe modality for improvement of various clinical and biochemical parameters like HbA1c, total cholesterol serum triglyceride, serum HDL and LDL- cholesterol in patients of diabetes mellitus. We understand the limitations and constraints of our study. (We have taken a relatively smaller sample size of 200 patients. Ideally such lifestyle modification studies should be continued for several years to firmly establish a conclusive role of some therapy. Due to the time limit of thesis we could only follow these patients for six months) So this study is a modest attempt in one of the important areas of role of yoga in diabetes mellitus and it hopes to encourage further research in this field. We recommend further large scale and multi-centric trials for longer follow up with intensive investigative approach to calibrate the benefits of yoga therapy in patients of diabetes mellitus especially in prediabetic patients.



DYSLIPIDEMIA AND INCREASED WAIST CIRCUMFERENCE AS A RISK FACTOR FOR ACUTE CORONARY SYNDROME IN YOUNG PATIENTS

Medicine

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ABSTRACT

Introduction: Dyslipidemia and Obesity are components of metabolic syndrome placing subjects at risk for cardiovascular and cerebrovascular diseases. It is now considered as both a public health and a clinical problem. Their prevalence varies around the world depending on the age and ethnicity of the populations studied and the diagnostic criteria used in the evaluation. **Aims And Objectives:** To study profile of Dyslipidemia and waist circumference in Young Patients of Acute coronary Syndrome. **Methods:** The study type is cross sectional study. The work was conducted in DEPARTMENT OF MEDICINE, L.L.R.M MEDICAL COLLEGE, MEERUT. A sample size of 120 patients attending medicine OPD/IPD and Cardiology OPD were selected as per criteria. **Results:** Among the study population 100 participants had deranged triglycerides, 47 participants had deranged HDL and 58 participants had deranged waist circumference. **Conclusion:** Among all the components of metabolic syndrome, triglyceride levels was the commonest component elevated (83%). The prevalence of low HDL cholesterol levels was 39% and increased waist hip ratio was 48%.

KEYWORDS

Acute coronary syndrome, Dyslipidemia, Waist Circumference.

INTRODUCTION

Elevated levels of total- and low density lipoprotein cholesterol (TC and LDL-C), elevated levels of triglycerides (TG) and low levels of high density lipoprotein cholesterol (HDL-C) are important risk factors for CAD. Early treatment of hyperlipidemia following acute coronary syndrome (ACS) provides potential benefits. Treating dyslipidemia has clear benefits in the primary and secondary prevention of coronary heart disease (CHD) in both sexes. Obesity is a highly preventable cause of death and an independent risk factor for cardiovascular diseases (CVD). Premature atherosclerotic events have increased in younger individuals.

MATERIAL AND METHODS

The study type is cross sectional study. The work was conducted in DEPARTMENT OF MEDICINE, L.L.R.M MEDICAL COLLEGE, MEERUT. A sample size of 120 patients attending medicine OPD/IPD and Cardiology OPD were selected as per criteria.

A pre-structured Proforma was filled up for the study. Each subject was given a thorough work up for history and physical examination to fulfill the inclusion and exclusion criteria. Routine hematological and biochemical investigations were carried out. The following parameters were measured at the time of enrollment into the study:

Inclusion Criteria:

- Patients who will give consent
- Age between 18 to 45 years
- Patients having Acute Coronary Syndrome

Exclusion Criteria:

- Patients on Anti-lipidemic Drugs
- Patients with impaired renal function.
- Cardiomyopathies,
- Patients having thyroid dysfunction.
- Pregnancy

RESULTS

Distribution of the Participants in Terms of 'Triglycerides (mg/dL)'

Table 1: Distribution of Triglycerides

Triglycerides	Frequency	Percentage	95% CI
Deranged	100	83.3%	75.2% - 89.3%
WNL	20	16.7%	10.7% - 24.8%

83.3% of the participants had Triglycerides: Deranged. 16.7% of the participants had Triglycerides: WNL.

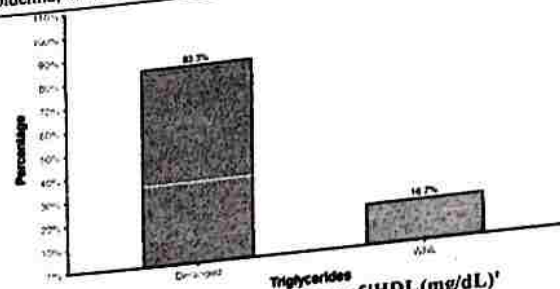
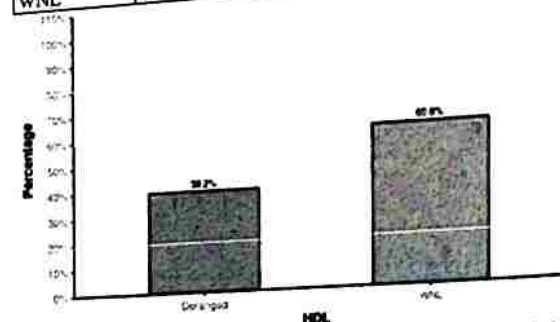


Table 2: Distribution of HDL

HDL	Frequency	Percentage	95% CI
Deranged	47	39.2%	30.5% - 48.5%
WNL	73	60.8%	51.5% - 69.5%



39.2% of the participants had HDL: Deranged. 60.8% of the participants had HDL: WNL.

Table 3: Distribution of Waist Circumference

Waist Circumference	Frequency	Percentage	95% CI
Deranged	58	48.3%	39.2% - 57.6%
WNL	62	51.7%	42.4% - 60.8%

48.3% of the participants had Waist Circumference: Deranged. 51.7% of the participants had Waist Circumference: WNL.

Reference

1. Agrawal R. P. *et al.*. Effects of yoga and meditation on clinical and biochemical parameters of metabolic syndrome. *Diabetes Research and Clinical Practice*, 78(3).p.e9, Dec 2007
2. Alberti KG, Zimmet PZ. Definition, diagnosis and classification of diabetes mellitus and its complications: Part 1: diagnosis, and classification of diabetes mellitus, provisional report of a WHO consultation. *Diabet Med*. 1998;15:539-553.
3. Alberti KG, Zimmet PZ, Shaw J. The metabolic syndrome: a new worldwide definition. *Lancet*. 2005;366:1059-1062.
4. Alberti KG, Zimmet PZ. Definition, diagnosis and classification of diabetes mellitus and its complications. Part 1: diagnosis and classification of diabetes mellitus provisional report of a WHO consultation. *Diabet Med* 1998;15:539-53.
5. Arya TVS *et al.* "Yoga is life style modification". Souvenir APICON-2009, p. no. 45-48, Jan 2009.
6. Balkau B, Charles MA. Comment on the provisional report from the WHO consultation. European Group for the Study of Insulin Resistance. *Diabet Med* 1999;16:442-43.
7. Balkrishna .Yog in Synergy with Medical Science. 1st ed 2007.
8. Divya Prakashan. Bera TK, Rajapurkar MV. Body Composition, cardiovascular endurance and anaerobic power of yogic practitioner. *Indian J Physiology and Pharmacology* 1993: 37;225-228.
9. Bhagwad Gita. Circa 3000 B.C Chapter 6: verse 17.
10. Bijlani R.L., Vempati R.P., Yadav R.K., Ray R.B., Gupta V., Sharma R.. A brief but complement lifestyle education programme based on yoga reduces risk factors for cardiovascular disease and diabetes mellitus. *J. Altern. Complement. Med.* 11(2) (2005) 267-274.
11. Bloomgarden ZT 2003 American Association of Clinical Endocrinologist (AACE) consensus conference on the insulin resistance syndrome: 25-26 Aug 2002, Washington, DC. *Diabetes Care* 26:1297-1303

To Study the Profile of Metabolic Syndrome in Young Patients of Acute Coronary Syndrome

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Abstract: *Introduction:* Metabolic syndrome (MS) is a clinical and biological entity of lipid and nonlipid factors of metabolic origin, which places subjects at risk for cardiovascular and cerebrovascular diseases. *Aims and Objectives:* To study profile of Metabolic Syndrome in Young Patients of Acute coronary Syndrome. *Methods:* The study type is cross sectional study. The work was conducted in DEPARTMENT OF MEDICINE, L. L. R. M MEDICAL COLLEGE, MEERUT. A sample size of 120 patients attending medicine OPD/IPD and Cardiology OPD were selected as per criteria. *Results:* Among the study population 58 participants had Metabolic Syndrome and 62 participants did not have Metabolic Syndrome. *Conclusion:* The prevalence of metabolic syndrome, triglyceride levels was the commonest component elevated (83%). The prevalence of other components were low HDL cholesterol levels (39%), increased waist hip ratio (48%) and elevated blood pressure (29%).

Keywords: Metabolic syndrome, Acute coronary syndrome, Coronary Artery Disease

1. Introduction

ACS leads to significant effects on patient's psychology, morbidity, and increased financial burden when it occurs at this young age (1, 2). Young patients with ACS on coronary angiography (CAG) show a relatively increased incidence of single - vessel disease and nonobstructive stenosis. The risk as well as the clinical factor profile and the arterial involvement pattern differ between young and elderly CAD patients (3, 4). Metabolic, genetic, and conventional causes may result in CAD occurring at a younger age in India. ACS in very young adults with age ≤ 30 years is rare (5). In India, the prevalence of acute myocardial infarction (AMI) in this population is between 2 - 10%. (6)

Coronary artery disease (CAD) is the single most frequent cause of death. The atherosclerotic cardiovascular disease is a chronic disorder developing insidiously, and it remains as the major cause of premature death. Importantly, evidence revealing that increased cardiovascular risk starts to develop at a very young age has accumulated over the past decades.

Metabolic syndrome (MS) is a clinical and biological entity of lipid and nonlipid factors of metabolic origin, which places subjects at risk for cardiovascular and cerebrovascular diseases.

2. Material and Methods

The study type is cross sectional study. The work was conducted in Department of Medicine, L. L. R. M Medical College, Meerut. A sample size of 120 patients attending medicine OPD/IPD and Cardiology OPD were selected as per criteria.

A pre - structured Proforma was filled up for the study. Each subject was given a thorough work up for history and physical examination to fulfill the inclusion and exclusion criteria. Routine hematological and biochemical investigations were carried out. The following parameters were measured at the time of enrollment into the study:

Inclusion Criteria:

- Patients who will give consent
- Age between 18 to 45 years
- Patients having Acute Coronary Syndrome

Exclusion Criteria:

- Patients on Anti - lipidemic Drugs
- Patients with impaired renal function.
- Cardiomyopathies.
- Patients having thyroid dysfunction.
- Pregnancy

3. Results

Distribution of the Participants in Terms of 'BP (mmHg)'

Table 1: Distribution of BP

BP	Frequency	Percentage	95% CI
Deranged	35	29.2%	21.4% - 38.3%
WNL	85	70.8%	61.7% - 78.6%

- 29.2% of the participants had BP: Deranged.
- 70.8% of the participants had BP: WNL.

Table-2
Fasting Blood Sugar at baseline, 3 month and 6 month

Group	Pre study (baseline) Mean FBS(mg/dl)	Post study (at 6 months) Mean FBS (mg/dl)	Mean difference	Difference in percentage	P- value within the group (paired t-test)
Yoga group (Group A)	178.452±35.244	114.762±14.596	63.69	35.69%	<0.0001
Control group (Group B)	175.558±42.858	122.762±43.932	52.796	30.07%	<0.0001
P- value (independent t-test)	0.63088	0.11472			

It is also evident from the result of independent t-test depicted in Table 2 that at baseline, there was no statistically significant difference between the yoga and control groups (independent t-test p- value>0.05), the difference was also insignificant at the end of six months (independent t-test p-value >0.05) so although the Yoga therapy results in a significant decrease in fasting blood sugar of yoga group at the end of six months. But the difference between both groups is not significant.

2.) Post Prandial Blood Sugar (PPBS)

Table 3
Post Prandial Blood Sugar at baseline and 6 months

Group	Pre study (baseline) PPBS (mg/dl)	Post study (at 6 months) PPBS (mg/dl)	Mean difference	Difference in percentage	P- value within the group (paired t- test)
Yoga group (Group A)	294.298±65.283	201.131±32.688	93.167	31.65%	<0.001
Control group (Group B)	285.744±45.889	205.584±20.991	80.16	28.05%	<0.001
P- value (independent t-test)	0.3235	<0.29097			

3.) **HbA1c level**-It can be seen from Table 5 that there is a significant reduction of 18.36% (paired t-test p-value < 0.001) in HbA1c in the patients in the yoga group (Group A) at the end of six months. In the control group patients also there was a statistically significant but a lesser reduction of 13.4% from baseline value (paired t-test p-value <0.001).

patients took yoga therapy and anti diabetic drugs. **Group B** patients were control group they were diabetic patients on routine anti diabetic treatment who attended our hospital but not practiced yoga. The managed group (yoga) was trained by a professional. The class was of 60 minutes duration which included 20 minutes of pranayama, followed by 40 minutes of asanas. The asanas include 10 minutes of sitting postures (Sthitta Konasana, Paschimottasana), 8 minutes of standing postures (Trikonasana, Konasana, Padhashtasana), 7 mins of prone postures {Bhujangasana, Salabhasna} and 15 minutes of supine postures {Shavasna, Dwicakrasana, Padavratasana} for first 15 days five times a week and they were asked to do the same at home for the rest of study duration. They were also

advised to practice yoga based lifestyle including correct routines sleep habits, cultivation of faith and positive attitude, saattvik yogic diet as explained by the instructor. Patients were assessed at beginning of study, at completion of 3 months of study & at completion of 6 months of study by using FBS, PPBS, FLP, HbA1c and serum insulin levels.

OBSERVATIONS: The study is based on 200 patients. For the purpose of study the patients were randomly allocated to either Group A (Study Group/ Yoga Group) or Group B (Control Group). Out of 200 patients 170 patients completed the study. The details of patients enrolled and completing the study is depicted in Table 1.

TABLE-1: DISTRIBUTION OF PATIENTS

	Number of patient in beginning	Patients at the end of 6 month	% of patients completed study
Yoga group	100	84	84%
Control group	100	86	86%

RESULTS OF INDIVIDUAL PARAMETERS

1) **Fasting Blood Sugar**-It is evident from Table 2 that there is significant decrease of 35.69% (from mean fasting blood sugar of 178.45 at baseline to 114.76 at six months; paired t-test p-value < 0.05 in FBS of patients in the yoga group (Group A) at the end of six months. In the control group patients also, there was a statistically significant decrease in fasting blood sugar of 30.07% from baseline value (paired t-test p-value < 0.05).

INTRODUCTION

Yoga is an ancient system of relaxation, exercise and healing with origins in Indian philosophy.

The philosophy of yoga is sometimes pictured as a tree with eight branches. These eight limbs are: *pranayama* (breathing exercises), *asana* (physical postures), *yama* (moral behavior), *niyama* (healthy habit), *dharana* (concentration), *prathyahara* (sense withdrawal), *dhyana* (contemplation), and *samadhi* (higher consciousness).

Diabetes mellitus is a worldwide health problem predisposing to markedly increased cardiovascular mortality and morbidity. Lipid abnormalities significantly contribute to the increased risk of cardiovascular disease and other morbidity in diabetics. It has been demonstrated that high levels of serum Total cholesterol, triglycerides, LDL, VLDL, glycated haemoglobin (HbA_{1c}), microalbuminuria, hypertension, low concentration of HDL and increased body mass index (BMI) are significantly associated with coronary heart disease. Exercise is a major therapeutic modality in the treatment of diabetes mellitus. Regular physical exercise has been reported to be effective in the prevention and delay of onset of type 2 diabetes, increases insulin sensitivity, and ameliorates glucose metabolism. Yoga has become increasingly popular in Western cultures as a means of exercise and training fitness. It has been used clinically as a therapeutic intervention and its practice includes muscle stretching, breathing exercises, behavioural modification, and dietary control through mental discipline.

A growing number of research studies have shown that yoga can improve strength and flexibility, and may help control physiological variables such as blood pressure, respiration and heart rate, and metabolic rate to improve overall exercise capacity. Studies carried out on medium or long-term effect of yoga exercise on

oxidative stress parameters and antioxidant status in type 2 diabetic patients are sparse. The aims of the present study were therefore to investigate the effects of yoga on HbA_{1c}, Serum insulin level & lipid profile, oxidative stress parameters and antioxidant status after 3 and 6 months of intervention in patients with type 2 diabetes mellitus.

AIM AND OBJECTIVE

To study the effect of yoga on HbA_{1c}, serum insulin level and lipid profile in Diabetic patients.

MATERIAL AND METHODS

This study was conducted on patients attending Medicine/Endocrine OPD and admitted in Medicine/Endocrine ward at LLRM Medical College, Meerut and included patients with type 2 diabetes mellitus on treatment. Study was conducted in a total of 200 patients in two groups of 100 patients each with following inclusion and exclusion criteria.

INCLUSION CRITERIA:

Patients suffering from type 2 DM

Age >30 year of age

Patients who were cooperative

Patients who gave written informed consent

Non-Smoker and Non-Alcoholic

EXCLUSION CRITERIA :

Type 2 diabetes mellitus with malnutrition or severe complications of the disease (cardiovascular, renal, visual and cerebral).

Patients on hyperlipidaemia drug

Age < 30 Years

Uncooperative/Unable to provide informed written consent.

Study Procedure: 200 patients with type 2DM on T/t attending Medicine /Endocrine OPD or admitted in medicine /Endocrine ward were assessed thoroughly with proper history, clinical examination and required investigation. Patients were divided in two groups of 100 patients each. **Group A**



TO STUDY PREVALENCE OF DIABETES MELLITUS AND ITS RISK FACTOR IN HIV PATIENTS

General Medicine

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ABSTRACT

Diabetes mellitus complicating HIV/anti retroviral therapy is an area to be focused. An increase in glucose disorders has been observed in HIV patients receiving HAART. **Aim** of the study was to find out prevalence of diabetes mellitus and its risk factor in hiv patients. **Materials And Methods:** The study will be of cross sectional prevalence study include patient with confirmed status of HIV (ELISA) admitted in Medicine ward and attending medicine OPD 4no. and patient attended at ART CENTRE. A total of 120 HIV patients receiving anti retroviral therapy were enrolled in the study. **Results:** The prevalence of diabetes mellitus in our study population was found to be 8.33%. Statistically significant association was found between fasting blood sugar and ART regimen, blood pressure and ART regimen, triglyceride and ART regimen, LDL and ART regimen, HDL and ART regimen. **Conclusion:** Though anti retroviral therapy has significantly decreased the mortality and morbidity of HIV patients, it has its own metabolic complications, diabetes mellitus being one among them. Vigilant monitoring of HIV patients on anti retroviral therapy is imperative to detect and address potential metabolic derangements.

KEYWORDS

HIV, Diabetes mellitus, Anti Retroviral therapy, hyperglycemia

INTRODUCTION

Acquired Immunodeficiency Syndrome (AIDS), caused by the Human Immunodeficiency Virus (HIV), has been one of the largest pandemics and global health challenges(1). Approximately 39.0 million [33.1 million-45.7 million] people globally were living with HIV in 2022. Around 1.3 million [1 million-1.7 million] people were newly infected with HIV in 2022(2). Diabetes is a chronic metabolic disease characterized by elevated levels of blood glucose (or blood sugar), which leads over time to severe damage to the heart, blood vessels, eyes, kidneys, and nerves. About 422 million individuals worldwide have diabetes, with the majority residing in low- and middle-income countries, and 1.5 million deaths are directly attributed to diabetes each year. Both the number of cases and the prevalence of diabetes have been steadily increasing over the past few decades(3).

An increase in glucose disorders has been observed in HIV patients receiving Highly Active Antiretroviral Therapy (HAART)(4). The effect of HAART on glucose metabolism resulting in Type 2 Diabetes Mellitus (DM2) is not clearly elucidated; however, thymidine-based Nucleoside Reverse Transcriptase Inhibitors (NRTIs) and Protease Inhibitors (PIs) are of significant concern. Thymidine NRTIs such as AZT combined with LPV/r were found to decrease insulin sensitivity by up to 25%, thereby increasing the risk for Insulin Resistance (IR). However, no IR was observed when combined with NVP as a backbone. Fleishman et al. (2007) proposed that NRTIs induce cumulative effects leading to the development of DM2, while PIs induce acute metabolic effects.

The effect of PIs on lipid metabolism is characterized by elevated levels of triglycerides (TG), total cholesterol (TC), and LDL-cholesterol, along with decreased levels of HDL-cholesterol. The use of ritonavir has been linked to significantly increased serum TC and TG levels in both seronegative and HIV-positive patients(6). High rates of lipid abnormalities have been detected in patients receiving PIs. The global burden of HIV individuals is increasing day by day, and diabetes remains the leading global disease, with its risk factors prevailing. As both HIV and Type 2 diabetes are immunocompromised states, our aim is to study the prevalence of the disease in HIV individuals and their outcomes.

AIM AND OBJECTIVES

1. To study the prevalence of Diabetes Mellitus in HIV Patients.
2. To study risk factors associated with Diabetes Mellitus in HIV Patients.

MATERIALS AND METHODS

The study was conducted at the Department of Medicine at LLRM Medical College and SVBP Hospital, Meerut, Uttar Pradesh, during the period of 2020-2021. The study was a cross-sectional prevalence study that included patients with confirmed HIV status (ELISA) and admitted to the Medicine ward, those attending the Medicine OPD, and patients attending the ART Centre. Around 120 participants were selected randomly, and all patients were interviewed, with a detailed history taken about the duration of HIV, ART status, and other comorbid conditions such as Type 2 Diabetes mellitus or any other chronic illness. Participants underwent a detailed physical examination, and necessary blood investigations were performed. Informed consent was obtained from all patients for the study, and patient confidentiality will be maintained.

Inclusion Criteria:

- Patients included in the study were required to meet the following criteria:
- Age of more than 18 years.
 - Confirmed HIV-positive status determined by ELISA testing.

Exclusion Criteria:

- Patients meeting any of the following criteria were excluded from the study:
- Use of drugs known to impair blood sugar levels, including Corticosteroids, Thiazides, Octreotide, and Anti-psychotics.

OBSERVATIONS AND RESULTS

Diabetes mellitus is one of the most common diseases affecting a large population. Diabetes mellitus complicating HIV/anti retroviral therapy is an area to be focused. In this study, the prevalence of diabetes mellitus in HIV patients receiving antiretroviral therapy has been evaluated. The study was conducted as a cross sectional prevalence study in which a total of 120 HIV patients receiving anti retroviral therapy were enrolled in the study. It includes 60.8% males and 39.2% females. In our study, majority (40.8%) fall under the age group of 31-40 years, followed by 26.7% under 41-50 years, 15.8% under 18-30 years, 16.7% under the age group of 51-60 years. In our study, 9.3% received protease inhibitor containing regimen and 90.7% of the study population received non-protease inhibitor containing regimen. In our study, patients who took ART for 6 months to 2 years comprised the most (36.7%) followed by 2-4 years (30%), 4-6 years (18.3%), less than 6 months (13.3%) and more 6 years comprised 1.7% of the study population.