

FREQUENCY OF DYSLIPIDEMIA IN PATIENTS WITH HYPERTENSION AT SHALAMAR HOSPITAL

Dr. Sana Ullah^{*1}, Dr. Mujeeb ur Rehman Abid Butt², Dr Ghulam Mujtaba³

^{*1}Postgraduate Resident Medicine Department, Shalamar Hospital, Lahore

²Professor of Medicine, Shalamar Hospital, Lahore

³Postgraduate Resident Medicine Department, Mayo Hospital, Lahore

^{*1}sana.4252@yahoo.com

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Corresponding Author: *

Dr. Sana Ullah

Abstract

Introduction: Hypertension and dyslipidemia coexist not by chance but more often, chance of coronary heart disease increases if these two exist in a body. According to major health concerns, hypertension is the major concern now a day for coronary vascular disease and most of the people were found with dyslipidemia, aging cause simultaneously changes in large arteries and inversely impact the heart and vital organs.

Objective: To determine the frequency of dyslipidemia in patients having hypertension in Medicine department of Shalamar Hospital, Lahore.

Study Design: Cross Sectional Study, conducted from 5th June 2023 to 5th December 2023

Setting: Medicine Department of Shalamar Hospital Lahore.

Methods: A total of 200 patients of both gender with hypertension were included in the study. Blood samples were taken after overnight fasting to confirm dyslipidemia. Patients diagnosed with dyslipidemia received appropriate care.

Results: The study analyzed 200 hypertensive patients with a mean age of 40.915 ± 10.60 years and mean hypertension duration of 7.945 ± 4.89 years. Gender distribution revealed 55% males and 45% females. Overall dyslipidemia prevalence was 53.5%.

Conclusion: Our study has concluded that dyslipidemia frequently coexists with hypertension.

INTRODUCTION

Hypertension and dyslipidemia coexist not by chance but more often, chance of coronary heart disease (CHD) increases if these two exist in a body. Individuals with high blood cholesterol level have high hypertension level than expected, and individuals with high hypertension have high blood cholesterol level than expected. Hypertension, dyslipidemia, and other CVD risk factors are linked metabolically and epidemiologically. ¹ Various studies

suggest that patients with hypertension and obesity have long term vascular issues and due to limited access to health and care these diseases become more determine. ² Study suggests that there is significant relationship between lipoproteins and gender, usually women having high lipoproteins level then men and had more measure of obesity with high weight. ³ Dyslipidemia is considered to be primary risk factor for coronary heart disease and plays role for other

diseases; study shows relationship between coronary heart disease and dyslipidemia in hypertensive patients.⁴ Among gender, the most prevalent pattern in men was combined dyslipidemia, with high triglycerides and low density lipoproteins while in female gender combination was high low density lipoprotein and low HDL. In Pakistan millions of people suffer from hypertension and diabetes which increase dyslipidemia probability to be there in body.⁵ It was found in study that there is increased risk of developing dyslipidemia in patients having high hypertensive issues with age. Patients with low systolic pressure and having age less than 40 years have decreased risk of dyslipidemia as compared to patients having high systolic pressure and age greater than 40 years.⁶

Most often dyslipidemia is neglected in patients with hypertension issues especially with high coronary vascular disease, Hypertension is the major cause of coronary vascular disease and patients having high systolic pressure and high hypertensive problem, there is a chance that patient will be having high probability of dyslipidemia.⁷ At least one abnormal lipoprotein and dyslipidemia was found in 60% of hypertension patients. Dyslipidemia according to gender and age. High TC was the most common abnormal lipid fraction, occurring in 43.4 % of the research population. Females aged 55-64 years being more likely to have it. Within the same gender and age dominance as TC. LDL-C was high in around one-third of the participants. In 20.8 and 12.9 % of the study population, high TG and low HDL-C were found, respectively.⁸ According to major health concerns, hypertension is the major concern now a day for coronary vascular disease and most of the people were found with dyslipidemia, aging cause simultaneously changes in large arteries and inversely impact the heart and vital organs.⁹⁻¹¹

Objective:

To determine the frequency of dyslipidemia in patients having hypertension in Medicine department of Shalamar Hospital, Lahore.

Methodology:

This cross-sectional study was conducted at Medicine Department of Shalamar Hospital from 5th June 2023 to 5th December 2023. A sample size of 200

cases was calculated using a 95% confidence level, a 7% margin of error, and an expected percentage of dyslipidemia as 43.4%.⁸ A consecutive non-probability sampling technique was used.

Inclusion Criteria

- Patients with hypertension was our sample within age of 20 to 60 years. There was no gender division, all was selected conveniently.

Exclusion Criteria:

- Patients with cardiovascular disease.
- Patients not willing to participate.

Data Collection:

200 individuals presenting with hypertension in the Medicine Department of Shalamar Hospital, Lahore, was included. Patients were informed, and consent was taken. Demographical data was recorded, including age, sex, smoking status, and disease duration. Blood samples were taken after overnight fasting to confirm dyslipidemia. Patients diagnosed with dyslipidemia received appropriate care in the hospital according to hospital protocol, and all legal procedures was followed.

Statistical Analysis:

All data collected was used for statistical analysis. Excel was used for data entry, and statistical software SPSS 2.0 was used for analysis. Demographic tests included age ranges and frequency of gender distribution using SPSS.

Age was presented as mean $\pm$ SD. Gender and dyslipidemia was presented as frequencies (%). Data was stratified for age, gender, grade of hypertension, and duration of disease. Post-stratification chi-square tests was applied. A p-value < 0.05 was considered statistically significant.

RESULTS:

The study analyzed 200 hypertensive patients with a mean age of 40.915 ± 10.60 years and mean hypertension duration of 7.945 ± 4.89 years (Table-I). Age distribution showed 51.5% patients aged 20-40 years and 48.5% aged 41-60 years (Table-II). Gender distribution revealed 55% males and 45% females (Table-III). Regarding hypertension severity, 48% had

Grade I and 52% had Grade II hypertension (Table-IV). Overall dyslipidemia prevalence was 53.5% (Table-V). Stratification analysis revealed significant associations ($p=0.000$) between dyslipidemia and several factors: age group (95.9% of 41-60 years vs 13.6% of 20-40 years had dyslipidemia), gender

(65.5% males vs 38.9% females had dyslipidemia), hypertension duration (94.3% of >10 years vs 38.8% of ≤ 10 years had dyslipidemia), and hypertension grade (96.2% of Grade II vs 7.3% of Grade I had dyslipidemia) as shown in Tables VI.

Table- I: Mean $\pm$ SD of patients according to age and duration of hypertension n=200

Demographics		Mean $\pm$ SD
1	Age (years)	40.915 $\pm$ 10.60
2	Duration of hypertension (years)	7.945 $\pm$ 4.89

Table- II: Frequency and %age of patients according to Age group n=200

Age Group (years)	Frequency (n)	Percentage (%)
20-40	103	51.5
41-60	97	48.5
Total	200	100.0

Table- III: Frequency and %age of patients according to gender n=200

Gender	Frequency	%age
Male	110	55%
Female	90	45%
Total	200	100%

Table- IV: Frequency and %age of patients according to grade of hypertension n=200

Grade of Hypertension	Frequency	%age
I	96	48%
II	104	52%
Total	200	100%

Table- V: Frequency and %age of patients according to Dyslipidemia n=200

Dyslipidemia	Frequency	%age
Yes	107	53.5%
No	93	46.5%
Total	200	100%

Table-VI: Stratification of Dyslipidemia with respect to age, gender and duration

Age Group (years)	Dyslipidemia – Yes n (%)	Dyslipidemia – No n (%)	p-value
20–40	14 (13.6%)	89 (86.4%)	0.000
41–60	93 (95.9%)	4 (4.1%)	
Total	107 (53.5%)	93 (46.5%)	
Gender			
Male	72 (65.5%)	38 (34.5%)	0.000
Female	35 (38.9%)	55 (61.1%)	
Total	107 (53.5%)	93 (46.5%)	
Duration of Hypertension (years)			
≤ 10	57 (38.8%)	90 (61.2%)	0.000
> 10	50 (94.3%)	3 (5.7%)	
Total	107 (53.5%)	93 (46.5%)	
Grade of Hypertension			
Grade I	7 (7.3%)	89 (92.7%)	0.000
Grade II	100 (96.2%)	4 (3.8%)	
Total	107 (53.5%)	93 (46.5%)	

Discussion:

The relatively young mean age of 40.915 years and mean hypertension duration of 7.945 years suggests early-onset hypertension, which could indicate genetic predisposition or lifestyle factors. The balanced age distribution between 20-40 years (51.5%) and 41-60 years (48.5%) allows for meaningful age-based comparisons. The slightly higher male prevalence (55% vs 45% females) aligns with established cardiovascular risk patterns, where men typically develop cardiovascular issues earlier than women due to hormonal protection in pre-menopausal women. The high proportion of Grade II hypertension (52%) indicates advanced disease burden, suggesting potential delays in diagnosis or treatment challenges. The overall dyslipidemia prevalence of 53.5% demonstrates the significant comorbidity burden in hypertensive patients, likely due to shared pathophysiological mechanisms including endothelial dysfunction and metabolic derangements.¹²

The strong age association (95.9% dyslipidemia in 41-60 years vs 13.6% in 20-40 years, $p=0.000$) reflects the cumulative effect of aging on metabolic health. Male predominance in dyslipidemia (65.5% vs 38.9% in females, $p=0.000$) again highlights gender-specific cardiovascular risk patterns. Longer hypertension

duration (>10 years) strongly correlates with dyslipidemia (94.3% vs 38.8% in ≤10 years, $p=0.000$), suggesting either progressive metabolic deterioration or shared risk factors accumulating over time. The striking association between Grade II hypertension and dyslipidemia (96.2% vs 7.3% in

Grade I, $p=0.000$) indicates that disease severity parallels metabolic derangement, possibly due to common pathophysiological mechanisms like inflammation and oxidative stress.¹³

The study by Hussain A et al.¹⁴ conducted a cross-sectional analysis on 362 coronary artery disease (CAD) patients in Northwest Pakistan to assess the prevalence, patterns, and factors associated with dyslipidemia. The study population had a mean age of 59.14 years and was predominantly male. Mixed dyslipidemia was observed in 92.26% of participants, with elevated LDL-C being the most common isolated lipid abnormality (84.25%). Factors such as age, BMI, and urban versus rural residence showed significant associations with lipid abnormalities. These findings highlighted the critical need for early screening and effective management to mitigate cardiovascular risks in this population.¹⁵ Khan SA et al. conducted a cross-sectional study at a tertiary care center in Pakistan to

determine the frequency of dyslipidemia among 332 newly diagnosed hypertensive patients. The majority of the participants were male (66.6%), with a mean age of 50.01 years. Dyslipidemia was present in 54.5% of the cases, and significant associations were found with smoking, diabetes, and male gender. Mean fasting lipid levels were recorded as total cholesterol 192.86 mg/dL, LDL-C 125.43 mg/dL, HDL-C 42.58 mg/dL, and triglycerides 135.86 mg/dL. The study emphasized the importance of routine lipid profile monitoring to prevent cardiovascular complications and improve patient outcomes.¹⁶ Wyszynska J et al. performed a cross-sectional study on 115 young adults aged 20-23 years from Poland to evaluate the prevalence and risk factors for hypertension and dyslipidemia. The study found that elevated LDL-C was present in 38.3%, low HDL-C in 13.9%, and hypertension in 30.5% of participants, with significantly higher prevalence in men (61.5%) compared to women (21.3%). Factors such as high BMI, excessive screen time, and smoking were identified as significant predictors of lipid abnormalities and hypertension.¹⁷ The findings stress the importance of lifestyle interventions to mitigate these risk factors in young populations. The study highlighted the importance of integrating dyslipidemia management into hypertension care to address the associated cardiovascular risks effectively.

Conclusion:

Our study has concluded that dyslipidemia frequently coexists with hypertension, showing significant associations with older age, male gender, longer hypertension duration, and higher hypertension grade. This relationship appears particularly strong in patients over 40 years of age and those with Grade II hypertension, suggesting a progressive metabolic deterioration with advancing age and disease severity. The findings emphasize the importance of routine lipid screening in hypertensive patients, especially in high-risk groups, to enable early intervention and prevent cardiovascular complications. This knowledge can help clinicians identify patients requiring more intensive monitoring and management strategies for both conditions.

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