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Original Research Article.

To Study Disparity in Prevalence of Dyslipidaemia in Urban and Semi-Urban Population Living Around Hyderabad

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ABSTRACT

Background: Dyslipidaemia is a prominent factor for cardiovascular diseases and it is detected by the elevation of plasma concentration of lipoproteins within the blood. The rise within the prevalence of dyslipidaemia and its consequences are partly attributed to rapid urbanization and changing trends in lifestyle. The objective was to study disparity in the prevalence of dyslipidaemia in the urban and semi-urban population living around Hyderabad.

Methodology: The current study is a population-based cross-sectional study conducted for one and a half year (October 2017- March 2019) at Department of General Medicine, Shadan Institute of Medical Sciences, Hyderabad with subjects divided in two subgroups (1) Urban- subjects coming from Greater Hyderabad Municipal Corporation limits (2) Semi-Urban- subjects coming from municipalities and gram panchayats of 4 representatives districts of Hyderabad Metropolitan Development Authority i.e. Rangareddy, Medak, Nalgonda, and Mahboobnagar districts.

Results: 72 subjects were enrolled in the study. The prevalence of dyslipidaemia was witnessed to be greater in males (52.78%) than in females (47.22%).13.89% of the total study population had elevated total Cholesterol levels (urban-9.38% & semiurban-17.95%). 19.44% of total study population had elevated triglycerides (urban-25% & semiurban-15.38%). 19.89% of total study population had low levels of high-density lipoproteins (urban-46.89% & semiurban-41.03%). 15.28% of total study population had elevated low-density lipoproteins levels (urban-15.63% & semiurban-15.38%).

Conclusion: 1. In this study, maximum study participants had very low levels of high-density lipoproteins. 2. No statistical significance was found between lipid profile and place of residence.3. It was found that high-density lipoproteins and gender had a significant association.

Keywords: Dyslipidaemia, Prevalence, Urban, Semi-urban.

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INTRODUCTION

Dyslipidaemia is known as a prominent risk factor for cardiovascular (CV) disease.[1] Cardiac diseases are the most predominant cause of death and disability in both developing as well as developed countries.[2] The rise in the prevalence of dyslipidaemia and its consequences are partly attributed to rapid urbanization and an unhealthy lifestyle. The general guidelines for the management of dyslipidaemia in Indians are according to the National Cholesterol Education Program, Adult Treatment Panel III.[3] Individuals with abnormal levels of total cholesterol (TC) or triglycerides (TAG) or high-density lipoproteins (HDL) cholesterol or low-density lipoproteins (LDL) cholesterol are on medication for dyslipidaemia (National Cholesterol Education Programme (NCEP) guidelines).

Very few studies have been undertaken to know the prevalence of dyslipidaemia in the Indian population, for example; prevalence of dyslipidaemia in urban and rural India, the ICMR-INDIAB study.[4] Few studies have observed the relationship between socioeconomic status and dyslipidaemia while others correlated differences in the prevalence of dyslipidaemia in urban and rural populations.

In this context, the present study was intended to examine the prevalence of dyslipidaemia in the urban and semi-urban population living in and around Hyderabad- a metropolitan city rapid unplanned urbanization and industrialization.

METHODOLOGY

A population-based cross-sectional clinical study, was conducted in the Department of General Medicine, Shadan Institute of Medical Sciences, Hyderabad with subjects divided in two subgroups (1) Urban- subjects coming from Greater Hyderabad Municipal Corporation (GHMC) limits (2) Semi-urban- subjects coming from municipalities and gram panchayats of 4 representatives districts of Hyderabad Metropolitan Development Authority (HMDA) i.e. Rangareddy, Medak, Nalgonda, and Mahboobnagar districts.

Total cholesterol (TC), triglyceride (TAG), high-density lipoprotein (HDL) cholesterol, and low-density lipoprotein (LDL) cholesterol were estimated as per NCEP ATP III guidelines for dyslipidaemia.

Dyslipidaemia as per NCEP ATP III Guidelines:[5]

- Total cholesterol >200mg/dl
- Triglyceride >150mg/dl
- HDL <40 mg/dl males and <50mg/dl (females)
- LDL >100 mg/dl

Data Collection

Following inclusion and exclusion criteria, 72 subjects of either gender, aged between 18 to 80 years were considered for this study. Each case has dyslipidaemia. A detailed history of demographic data was taken and thorough anthropometric, general and systemic examination was performed.

Duration

The duration of the study was over one and a half years (October 2017- March 2019).

Ethics Committee Clearance

Before commencement, the study was approved by the Ethics committee of Shadan Institute of Medical Sciences, Teaching Hospital and Research Centre, Hyderabad.

Informed Consent

Informed consent form was obtained from all the subjects before enrolling in the study.

Statistical Analysis: The statistical analyses were executed by using the SPSS software. Data is expressed as Mean ± SD and in percentage, p-value <0.05 is considered statistically significant.

Table 1: Gender distribution

Gender	Frequency	Percentage
Female	34	47.22%
Male	38	52.78%
Total	72	100.00%

Table 2: Distribution of High-density lipoprotein (HDL) cholesterol levels among the urban and semi-urban population

HDL levels	Urban	Semi-urban
<35 mg/dl	46.88%	41.03%
35-80 mg/dl	50.00%	58.97%
>80 mg/dl	3%	1%

Table 3: Distribution of Low-density lipoprotein (LDL) cholesterol levels among the urban and semi-urban population

LDL levels	Urban	Semi-urban
<85 mg/dl	40.63%	48.72%
85-130 mg/dl	43.75%	35.90%
>130 mg/dl	16%	15%

Table 4: Distribution of Total Cholesterol (TC) levels among the urban and semi-urban population

TC levels	Urban	Semi-urban
<125 mg/dl	25.00%	41.03%
125-200 mg/dl	65.63%	41.03%
>200 mg/dl	9.38%	18%

Table 5: Distribution of Triglyceride (TAG) levels among the urban and semi-urban population

TAG levels	Urban	Semi-urban
<200 mg/dl	15.63%	20.51%
25-200 mg/dl	62.50%	53.85%
>200 mg/dl	21.88%	25.64%

Table 6: Relationship between Gender and Lipid profile

Parameter		Mean difference	Standard deviation	t test value	p value
HDL	**Female**	41.58	12.89	2.12	0.03
	Male	34.89	13.79		
LDL	**Female**	92.9118	38.27	0.36	0.7
	Male	89.2105	48.711		
TC	**Female**	151.088	44.7792	0.61	0.5
	Male	143.5789	57.994		
TAG	**Female**	135.147	110.6762	-0.10	0.92
	Male	137.4474	90.92		

Table 7: Relationship between Residence and Lipid profile

Parameter		Mean difference	Standard deviation	t test value	p value
HDL	**Semi-urban**	37.425	11.98	-0.43	0.66
	Urban	38.84	15.75		
LDL	**Semi-urban**	88.825	43.51	-0.46	0.64
	Urban	93.625	44.7644		
TC	**Semi-urban**	142.77	51.6281	-0.79	0.43
	Urban	152.5625	52.6620		
TAG	**Semi-urban**	127.3	108.29	-0.86	0.39
	Urban	147.6875	88.97		

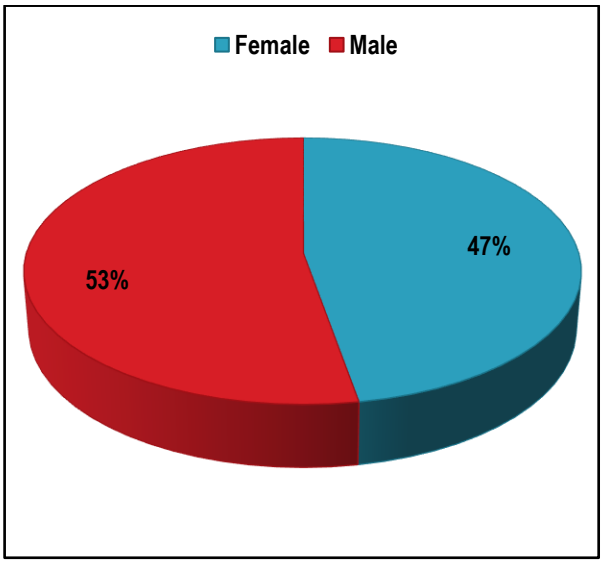

Fig 1: Distribution of study population according to gender

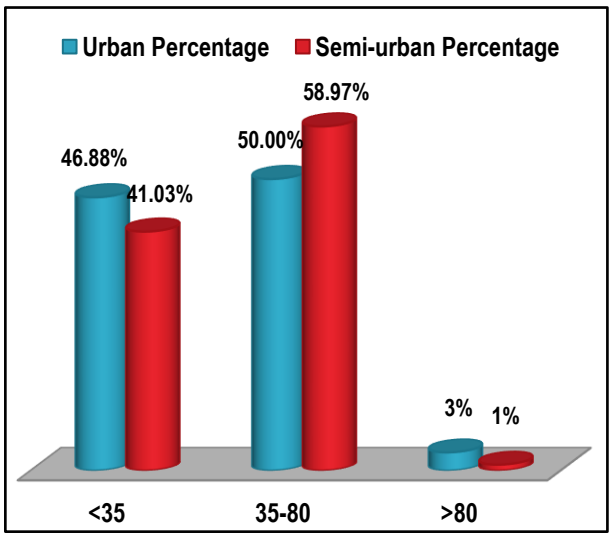

Fig 2: Distribution of High-density lipoprotein (HDL) cholesterol levels among the urban and semi-urban population

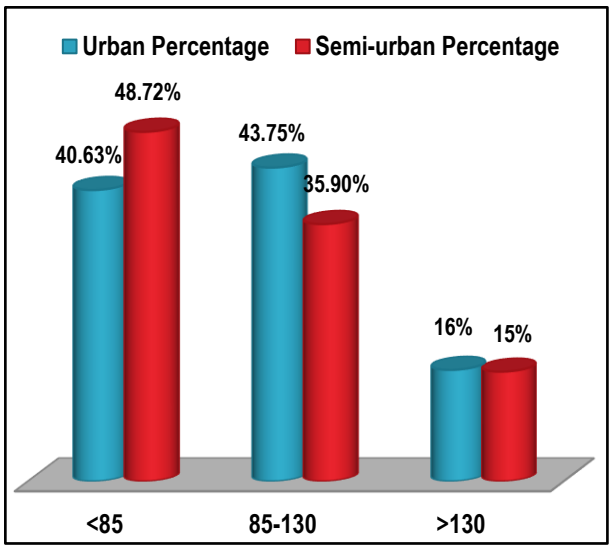

Fig 3: Distribution of Low-density lipoprotein (LDL) cholesterol levels among the urban and semi-urban population

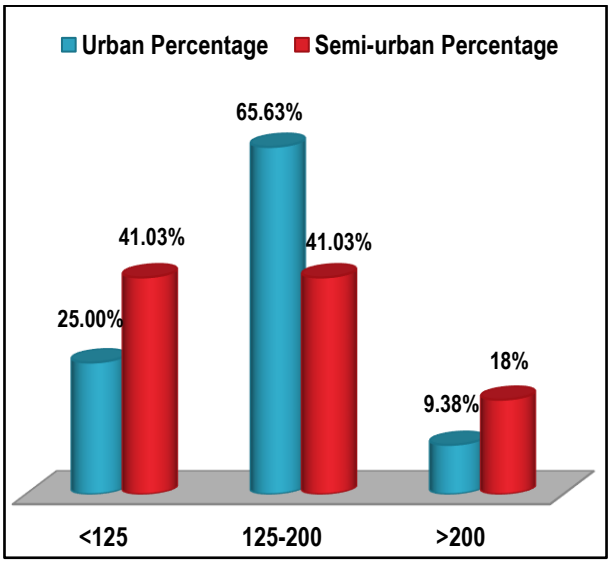

Fig 4: Distribution of Total Cholesterol (TC) levels among the urban and semi-urban population

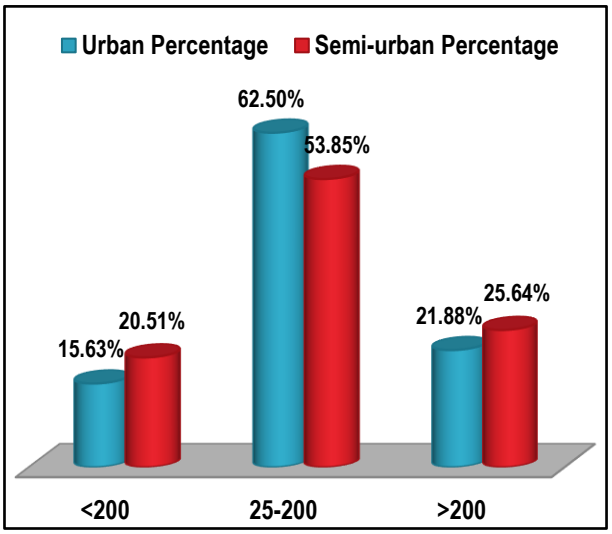

Figure 5: Distribution of Triglyceride (TAG) levels among the urban and semi-urban population

RESULTS

Table and figure 1 shows, the majority (52.78%) of study subjects were males, and the remaining 47.22% were females.

In table and figure 2, it was observed around 46.88% of urban and 41.03% of semi-urban study subjects had a very low level of high-density lipoprotein (HDL) cholesterol, i.e. <35mg/dl, respectively.

Table and figure 3, has16% of urban and 15% of semi-urban study subjects had a very high level of low-density lipoprotein (LDL) cholesterol, in the range of >130mg/dl, respectively.

In Table and figure 4, 9.38% of urban and 18% of semi-urban study subjects had a very high level of total cholesterol (TC), in the range of >200mg/dl, respectively.

Table and figure 5, has15.63% of urban and 20.51% of semi-urban study subjects had a very low level of triglycerides (TAG), in the range <200mg/dl, respectively.

In Table 6, the mean high-density lipoprotein (HDL) cholesterol level among females was 41.58 ± 12.89, and among males was found to be 34.89 ± 13.79. The difference was statistically significant (p value =0.3). The mean total cholesterol (TC) levels among females were found to be 151.08 ± 44.77 and among

males were found to be 143.57 ± 57.99 and the difference was not statistically significant (p value =0.5).

Table 7, depicts p values of parameters (HDL- p value=0.66, LDL-p value=0.64, TC- p value=0.43, and TAG -p value=0.43), suggesting that there is no statistically significant association between dyslipidaemia and place of residence (Urban & Semi-urban).

DISCUSSION

In our study dyslipidaemia was found to be prevalent in males. The prevalence of dyslipidaemia was noticed to be higher in males than in females.[6]

Maximum urban subjects (40.63%) had low-density lipoprotein (LDL) cholesterol in the borderline high range 85-130mg/dl. The most common dyslipidaemia in India are with borderline high LDL cholesterol[7] (85-130mg/dl).

Total cholesterol (TC) levels in a majority of urban study subjects (65.63%) were in the range 125 -200 mg/dl. In urban subjects the prevalence of high levels of TC (hypercholesterolaemia ≥ 200 mg/dl) was significantly more[8].

The majority of study subjects both urban (62.50%) and semi-urban (53.85%) residents had high triglyceride (TAG) levels in the range of 25 – 200mg/dl. Elevated TAG levels among urban adults[9] and semi-urban population[10] was witnessed.

CONCLUSION

High-density lipoprotein (HDL) cholesterol was of low levels in 19.89% of study population (46.88% urban & 41.03%semi-urban)—p value 0.66. High levels of low-density lipoprotein (LDL) cholesterol was found in 15.28% of the study population (15.63%Urban & 15.38%Semi-urban)—p value 0.64.

Total cholesterol (TC) levels were elevated in 13.89% of the total study population (9.38%-Urban & 17.95% Semi-urban)—p value 0.43. Triglycerides (TAG) were found to be elevated in 19.44% of the total study population (25% Urban & 15.38%Semi-urban)—p value 0.39.

From our study, it is concluded that the parameters HDL, LDL, TC, and TAG have no statistically significant association between dyslipidaemia and place of residence (Urban & Semi-urban).

REFERENCES

1. Yusuf S, Hawken S, Ounpuu S. Effect of potentially modifiable risk factors associated with myocardial infarction in 52 countries (the INTERHEART study): Case-control study. ACC Current Journal Review. 2004;13(12):15-6.

2. Chaturvedi V, Bhargava B. Health Care Delivery for Coronary Heart Disease in India? Where Are We Headed? Am Heart Hosp J. 2007;5(1):32-7.

3. Misra A, Luthra K, Vikram NK. Dyslipidaemia in Asian Indians: Determinants and significance. Journal of Association of Physicians of India. 2004;52(2):137-42.

4. Joshi S, Anjana R, Deepa M et al. Prevalence of Dyslipidemia in Urban and Rural India: The ICMR–INDIAB Study. PLoS ONE. 2014;9(5): e96808.

5. Inada A, Weir G, Bonner-Weir S. Induced ICER Iaγ down-regulates cyclin A expression and cell proliferation in insulin-producing β cells. Biochem Biophys Res Commun. 2005;329(3):925-9.

6. Sawant AM, Shetty D, Mankeshwar R, Ashavaid TF. Prevalence of Dyslipidemia in young adult Indian population. Journal of Association of Physicians of India. 2008;56(2):99-102.

7. Gupta R, Rao RS, Misra A, Sharma SK. Recent trends in epidemiology of Dyslipidemias in India. Indian Heart J. 2017;69(3):382-92.

8. Gupta R, Prakash H, Kaul V. Cholesterol lipoproteins, triglycerides, rural - Urban differences and prevalence of dyslipidemia among males in Rajasthan. J Assoc Physicians India. 1997;45(4):275-9.

9. Opoku S, Gan Y, Fu W, et al. Prevalence and risk factors for Dyslipidemia among adults in rural and urban China: Findings from the China National Stroke Screening and prevention project (CNSSPP). BMC Public Health. 2019;19(1):1.

10. Olamoyegun M, Oluyombo R, Asaolu S. Evaluation of Dyslipidemia, lipid ratios, and atherogenic index as cardiovascular risk factors among semi-urban dwellers in Nigeria. Ann Afr Med. 2016;15(4):94–199.

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