LIPOPROTEIN ASSOCIATED PHOSPHOLIPASE A2 (Lp-PLA$_2$) AS EMERGING CARDIOVASCULAR MARKER

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INTRODUCTION

- The incidence of cardiovascular diseases (CVD) is on an increase globally.
- The incidence of CVD can be reduced if the risk factors are identified in advance and appropriate interventions done.
- Studies have shown that conventionally used biomarkers like Total Cholesterol, LDL-Cholesterol, TG and HDL-Cholesterol are less reliable, having low predictive value for the early detection of chance of development of CVD.
- This warrant the need for more reliable and accurate investigations.
- Lp-PLA$_2$ is an enzyme specific to arterial inflammation making it a promising biomarker for predicting the development of CVD[2,3]. Recent studies have shown that this is a more specific marker[2].

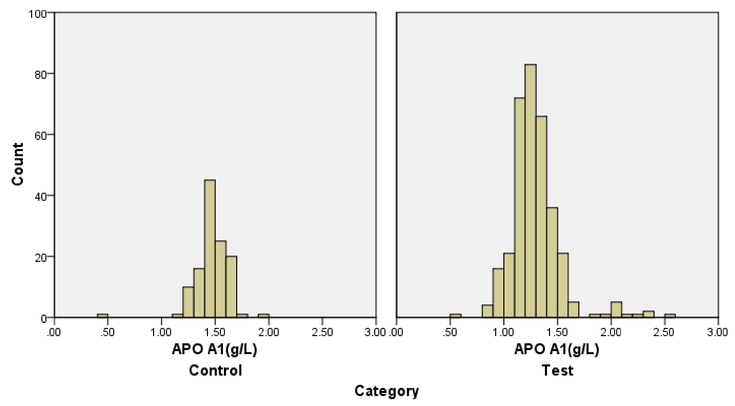
MATERIALS

- The cross-sectional study was conducted in a tertiary care teaching hospital.
- A total of 500 volunteers were recruited and grouped into two namely test (n=350) and control (n=150).
- Test population comprised people with any of the three risk factors as per Adult Treatment Panel III (ATP III) guidelines[3] and control population were age and sex-matched healthy individuals.
- Collected samples were used for biochemical analysis biomarkers like lipid profile, blood glucose level, Apo-A1, Apo-B, Lp-PLA$_2$ (DiaSys India). The values obtained were compared and analyzed by using students t - test.

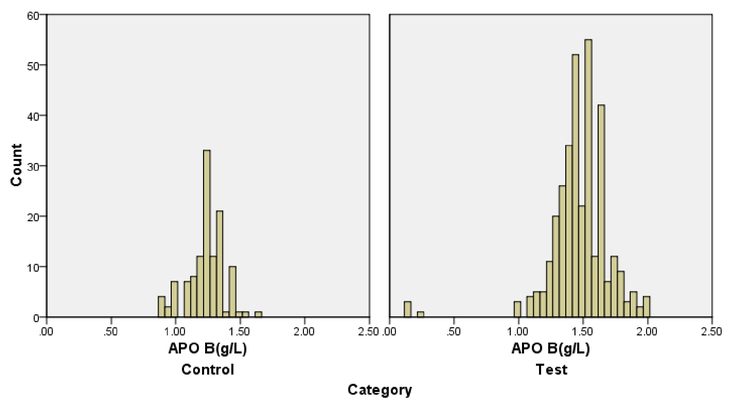
RESULT AND DISCUSSION

- The study was conducted to evaluate the role of Lp-PLA$_2$ as a predictive marker for CVD.
- The lipid profile analysis showed that a higher value for Total cholesterol LDL and TG in the test population.
- The Apo-A1 and Apo-B level were significantly higher ($p<0.05$) in test population compared to the control group.
- Both Apo-A1 and Apo-B levels were significantly higher in the test population. But studies have shown that they are less specific.

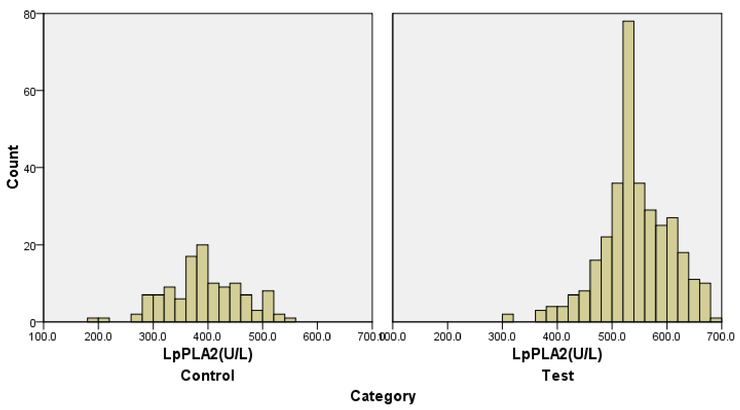
Histogram of Apo-A1 (g/L)



Histogram of Apo-B (g/L)



Histogram of LpPLA2



t – tests statistics

Table 1. t-test Statistics of ApoA1, ApoB and LPPLA2

Category		N	Mean	Std. Deviation	Std. Error Mean	t test Sig
APO A1(g/L)	Control	120	1.4666	.16300	.01488	
	Test	337	1.2664	.23138	.01260	<0.001*
APO B(g/L)	Control	120	1.2350	.13649	.01246	
	Test	337	1.4783	.22863	.01245	<0.001*
LpPLA2(U/L)	Control	120	393.842	68.4632	6.2498	
	Test	337	542.490	63.1370	3.4393	<0.001*

*Highly Significant

RESULT AND DISCUSSION

- The Lp-PLA$_2$ level was found to be significantly increased ($p<0.05$) among the test population, making it a reliable biomarker to predict risk for developing CVD.
- These findings were at par with the result of several studies conducted elsewhere[6]. The LpPLA2 level was found to be significantly increased among the test population making it a suitable biomarker for predicting CVD.
- Unlike other inflammatory markers like hs-CRP, Lp-PLA$_2$ is specific to vascular inflammation which makes Lp-PLA$_2$ as a reliable marker for identifying cardiovascular risk.

CONCLUSION

- The study was conducted to identify the role of Lp-PLA$_2$ as a biomarker for predicting the risk of developing cardiovascular diseases.
- This study demonstrates the role of LpPLA2 as biomarker in predicting the development of CVD.
- The authors recommend a prospective study with follow up and larger study population to establish the specificity and advantages of Lp-PLA$_2$ over conventional biomarkers.

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