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"Comparative Study of Plasma Fibrinogen Levels and Lipid Profile in Patients with Ischemic Stroke"

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ABSTRACT

I. Background:

Fibrinogen is a protein which is synthesized by liver and secreted in plasma, that plays a key role in blood clotting. Fibrinogen molecules bridge adjacent platelets together to form platelet aggregates and arterial thrombosis leading to ischemic stroke. Fibrinogen association with increased incidence of stroke is in part related to its ability to promote thrombosis or clots by causing platelets to clump inside blood vessels.

Fibrinogen interacts with monocytes / macrophages. These cells are thought to play a major role in atherogenesis, and the binding of fibrinogen to monocytes / macrophages is associated with the triggering of procoagulant activities.

Fibrinogen is an independent risk factor for further recurrences of stroke apart from age, smoking, hypertension, diabetes and other risk factors.

Higher levels of fibrinogen are seen in ischemic stroke compared to hemorrhagic stroke. Increasing evidence suggests that fibrinogen is important in the development of premature atherosclerosis. Fibrinogen levels higher than 350mg/dl are powerful risk factors for stroke and coronary artery disease.

Compared to altered lipid profile in the form of high Low density lipoproteins (LDL) levels, triglycerides and low High Density Lipoproteins (HDL) levels, fibrinogen is a better predictor of future recurrences of stroke and adverse cardiovascular events.

OBJECTIVES

1) To study the plasma fibrinogen levels in patients with stroke and compare it with lipid profile.

2) To investigate whether these levels increase if the patient has additional risk factors like diabetes,hypertension,smoking.

3) To study the correlation between plasma fibrinogen levels and severity of stroke.

II. Materials And Methods

STUDY DESIGN: Observational study

SETTING:

This study will be done in patients presenting to General medicine ward in **GOVERNMENT VELLORE MEDICAL COLLEGE AND HOSPITAL.**

STUDY PERIOD: October 2018 to September2019.

SAMPLE SIZE:100

SELECTION CRITERIA

INCLUSION CRITERIA:

1) Patients with ischemic stroke confirmed by CT scan or MRI brain.

2) Patients age more than 18 years

EXCLUSION CRITERIA:

1) Patients having evidence of renal disease, active hepatic disease, history of prior MI or surgery within preceding 3 months.

2) Patients with prior history of stroke or TIA's.

3) Patients with history of any infection in prior 4 weeks.

4) Patients on any lipid lowering agents including fibrates.

Table 25: Comparison of outcome with fibrinogen levels (N=100)

Outcome	Fibrinogen		Total
	Normal (150 to 400)	Abnormal (400 and above)	
Discharge	49	46	95
Percentage	100%	90.2%	95%
Expired	0	5	5
Percentage	0%	9.8%	5%
Total	49	51	100
Chi square	5.057		
P value	0.025		

This table shows that there is significant relationship between outcome and fibrinogen levels.

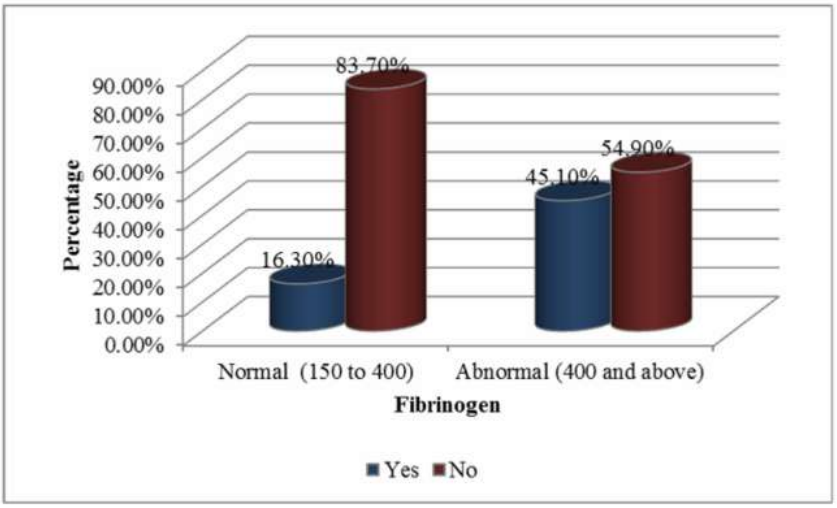

Figure 16: Cluster bar chart of comparison of DM with fibrinogen levels (N=100)

III. Conclusion

The following conclusions were derived from this study.

1) Plasma fibrinogen acts as a prognostic marker to predict functional outcome of stroke. This is evidenced by higher plasma fibrinogen values correlated with severity of stroke and outcome.

2) Plasma fibrinogen is an important risk factor for stroke, independent of age, diabetes mellitus, hypertension, smoking, alcoholism, dyslipidemia.

3) In this study, fibrinogen also has statistically significant association with other risk factors such as hypertension, diabetes mellitus, alcoholism, dyslipidemia.

4) This study also shows that there is significant association with LDL and severity of stroke. So LDL cholesterol is more significant while doing lipid profile in ischemic stroke.

5) So fibrinogen can be recommended as a screening tool while screening for Non Communicable diseases.

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