



RELATIONSHIP BETWEEN TRIGLYCERIDE LEVELS AND ACUTE ISCHEMIC STROKE

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ABSTRACT

At present, the relationship between triglyceride and ischemic stroke is controversial. In addition, in recent decades, few studies have focused on the correlation between triglyceride and ischemic stroke in the elderly population. Therefore, the purpose of this study was to explore the association between triglyceride and first ischemic stroke among the hypertensive patients.

Materials And Methods:- The study was Conducted in Acute ischemic stroke patients of R L Jalappa Hospital, Tamaka, Kolar included both inpatients and outpatients after meeting inclusion and exclusion criteria and. All participants was provided with written informed consent prior to being enrolled in the study.

Statistical Analysis:- Data was entered into Microsoft excel data sheet and was analyzed using SPSS 22 version software. Categorical data was represented in the form of Frequencies and proportions. Chi-square test or Fischer's exact test (for 2x2 tables only) was used as test of significance for qualitative data. Continuous data was represented as mean and standard deviation. Independent t test was used as test of significance to identify the mean difference between two quantitative variables. Correlations were performed with Pearson Correlation coefficient.

Results:- In our study we have included 68 subjects out of these 26 subjects were female and 42 subjects were Male. Out of 68 subjects 17 subjects were at 40-50yrs age group, 14 subjects were in 51-60yr age group, 16 subjects were at 61-70yrs age group and 21 subjects were at 71-80yrs age group. Out of 68 subjects 11(16.17%) subjects dead and 57(83.83%) subjects survived. There was a negative correction between NIHSS and Triglyceride which was not statistically significant.

KEYWORDS : Ischemic stroke, Triglyceride, NIHSS

INTRODUCTION

Stroke was defined as a clinical syndrome characterized by rapidly developing clinical symptoms and/or signs of focal and at times global loss of brain function, with symptoms lasting >24 hours or leading to earlier death, and with no apparent cause other than that of vascular origin.¹

Few of the major risk factors described for the occurrence of acute ischemic stroke include tobacco smoking, physical inactivity, an unhealthy diet, and certain other causes like obesity, diabetes mellitus, advanced arteriosclerosis, hypertension. Ischemic stroke is the third leading cause of death worldwide with 5 million annual deaths². The burden of stroke is likely to increase substantially in the near future because of the aging population. Stroke is the second leading cause of death worldwide, and the leading cause of acquired disability in adults in most regions. Apart from implementing effective stroke prevention programs, identification of factors associated with more severe stroke may help to ease the burden of this coming epidemic⁴. The metabolic pathways of triglycerides and HDL-C are related, and an increase in one will usually be accompanied by a decrease in the other (a rise in the HDL-C level will be accompanied by a drop in the triglyceride level, and vice versa)^{4,5} The potential biological mechanism responsible for association between TG level and stroke severity is unknown. Low TG level can reflect poor nutritional status. Although malnutrition after acute stroke is a risk factor for poor outcome, it does not explain stroke severity on admission. Individuals who had a stroke or TIA had higher than average levels of triglycerides and lower levels of HDL

cholesterol. At present, the relationship between triglyceride and ischemic stroke is controversial. In addition, in recent decades, few studies have focused on the correlation between triglyceride and ischemic stroke in the elderly population. Therefore, the purpose of this study was to explore the association between triglyceride and first ischemic stroke among the hypertensive patients.

MATERIALS AND METHODS

Study setting:- The study was conducted in R L Jalappa Hospital, Tamaka, Kolar, Karnataka.

Study design:- Cross sectional study.

Study period:- 3 months.

The study was Conducted in Acute ischemic stroke patients of R L Jalappa Hospital, Tamaka, Kolar included both inpatients and outpatients after meeting inclusion and exclusion criteria and. All participants was provided with written informed consent prior to being enrolled in the study.

Inclusion Criteria Of Cases:

Patients diagnosed with Acute ischemic stroke
Adults more than 18 years of age.

Exclusion Criteria Of Cases:

Patients who have undergone Renal transplant
Pregnant women
Malignancy

Collagen Vascular disease

Statistical Analysis:

Data was entered into Microsoft excel data sheet and was analyzed using SPSS 22 version software. Categorical data was represented in the form of Frequencies and proportions. **Chi-square test or Fischer's exact test** (for 2x2 tables only) was used as test of significance for qualitative data.

Continuous data was represented as mean and standard deviation. **Independent t test** was used as test of significance to identify the mean difference between two quantitative variables. Correlations were performed with **Pearson Correlation coefficient. P value** (Probability that the result is true) of <0.05 was considered as statistically significant after assuming all the rules of statistical tests.

Statistical Software:

MS Excel, SPSS version 22 (IBM SPSS Statistics, Somers NY, USA) was used to analyze data.

RESULTS.

In our study we have included 68 subjects out of these 26 subjects were female and 42 subjects were Male. Out of 68 subjects 17 subjects were at 40-50yrs age group, 14 subjects were in 51-60yr age group, 16 subjects were at 61-70yrs age group and 21 subjects were at 71-80yrs age group. Out of 68 subjects 11(16.17%) subjects dead and 57(83.83%) subjects survived.

Table 1:- Distribution Of Subjects According To Age Group And Outcome

	Survived		Death	
	N	%	N	%
40-50yrs	14	24.6%	3	27.3%
51-60yrs	11	19.3%	3	27.3%
61-70yrs	14	24.6%	2	18.2%
71-80yrs	18	31.6%	3	27.3%

P value 0.931, there was no statistically significant difference found between age group and outcome.

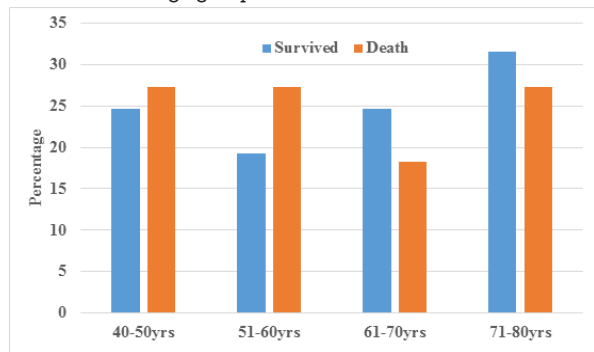


Figure 1:- Graph Showing Distribution Of Subjects According To Age Group And Outcome

Table 2:- Comparison Of Gender And Risk Factors According To Outcome

	Survived		Death		P value
	N	%	N	%	
Female	24	42.1%	2	18.2%	0.135
Male	33	57.9%	9	81.8%	
Hypertension	32	56.1%	3	27.3%	0.07
Diabetes mellitus	31	54.4%	7	63.6%	0.57
COPD/ asthma	4	7.0%	2	18.2%	0.23
Smoker	21	36.8%	6	54.5%	0.27
Alcohol	7	12.3%	2	18.2%	0.59
Tobacco/ beetle nut chewer	3	5.3%	1	9.1%	0.62

There was no statistically significant difference found between gender and outcome.

There was no statistically significant difference found between risk factors and outcome.

Table 3:- Comparison Of Triglyceride Levels According To Age, Gender, Risk Factors And Outcome

	Triglyceride levels		P value
	Mean	SD	
Age group			
40-50yrs	139	39	0.079
51-60yrs	141	74	
61-70yrs	141	65	
71-80yrs	147	59	
Gender			
Female	134	50	0.789
Male	147	64	
Risk factors			
Hypertension	146	63	0.274
Diabetes mellitus	145	64	0.170
COPD/ asthma	196	82	0.018
Smoker	151	62	0.303
Alcohol	159	88	0.374
Tobacco/ beetle nut chewer	122	15	0.478
Outcome			
Survived	137	56	0.120
Dead	168	67	

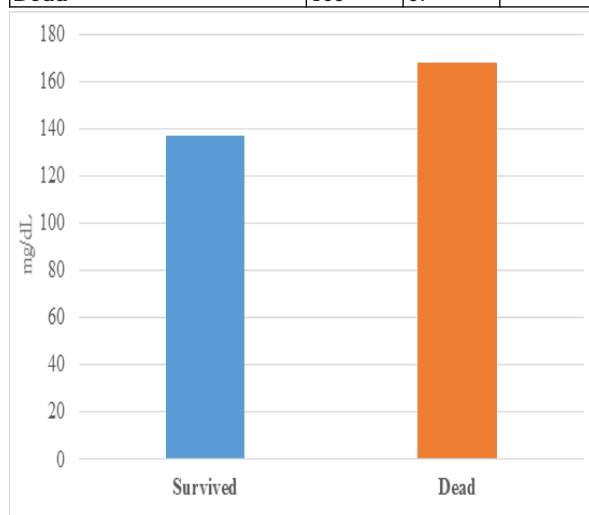


Figure 2:- Graph showing Comparison of Triglyceride levels according to outcome.

Mean Triglyceride levels in male were higher than females there was no statistically significant difference found between Triglyceride levels and gender. There was no statistically significant difference found between Triglyceride levels and age. Among the risk factors Triglyceride levels were higher in COPD which was statistically significant. There was no statistically significant difference found between Triglyceride levels and risk factors expect for COPD.

Mean Triglyceride levels was higher in dead subjects when compared with survived. There was no statistically significant difference found between Triglyceride levels and outcome.

Table 4:- Correlation Of Triglyceride With NIHSS.

		Triglyceride
NIHSS	Pearson Correlation	-0.028
	P value	.834

There was a negative correction between NIHSS and Triglyceride which was not statistically significant.

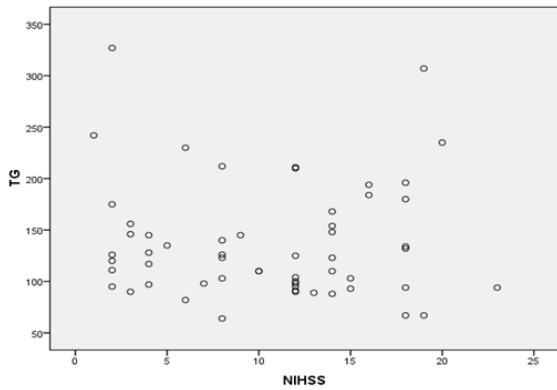


Figure 3:- Scatter plot for Correlation of Triglyceride with NIHSS.

DISCUSSION

We have conducted study to find relationship between Relationship between triglyceride levels and acute ischemic stroke. Hypertriglyceridemia may lead to ischemic stroke through its contribution to atherosclerosis and/or thrombogenicity. Studies suggest that hypertriglyceridemia fosters the development of atherosclerosis via several mechanisms.

In our study Mean Triglyceride levels was higher in dead subjects when compared with survived. There was no statistically significant difference found between Triglyceride levels and outcome. There was a negative correction between NIHSS and Triglyceride which was not statistically significant. In study done by Minal jain² showed that NIHSS had negative correlation with Triglyceride.

A recent prospective study reported that higher fasting TGs on admission predict less severe disability, reduced disability progression, and all-cause mortality in patients with acute ischemic stroke⁶. Another prospective study confirmed that low serum TG is an independent predictor of mortality after ischemic stroke, but noted that this association did not hold true in the subgroup with cardioembolic stroke⁷.

In our study Mean Triglyceride levels in male were higher than females there was no statistically significant difference found between Triglyceride levels and gender.

It is known that there are gender differences in lipid levels⁸

In a study done by Simundic et al. finding was opposite of our study finding that is higher severity of stroke had higher serum triglycerides⁹.

Limitations.

We did not had data of triglycerides of the subjects before stroke so it's not possible to determine whether an acute phase reaction could have affected lipid levels.

Small sample size was also a limitation of the present study. Therefore, in future further study may be under taken with large sample size.

CONCLUSION

We concluded that Triglyceride have negative correction with NIHSS which was not significant. Higher triglyceride will have worse outcome in stroke patients

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DECLARATIONS

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Conflict of interest: None declared.

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