A study of lipid profile in patients with ischemic stroke in rural coastal region of Maharashtra

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Abstract

Background: Stroke is a rising problem in the developing world. With the advancing life expectancy of people in developing countries, the importance of ischemic stroke will grow as a worldwide problem. **Aims and Objectives:** To study lipid profile in patients with Ischemic Stroke in Rural coastal region of Maharashtra. **Methodology:** This was a cross-sectional study carried out in the patents with Ischemic Stroke at Rural area Konkan during the one year period i.e. Sep 2017 to Aug 2018. In the one year period there were 201 patients enrolled into the study, all details of the patients like age, sex, lipid profile etc. investigations were carried out, similarly the age matched patients without stroke were also enrolled into study selected from the ward. The statistical analysis done by unpaired t-test and Chi square test analyzed by SPSS 19 version software. **Result:** In our study we have seen that The average age of Patients of Stroke was 60 ± 4.56 Yrs. and Patients without Stroke was 61 ± 3.76 Yrs. which was comparable with each other (t=1.23,df=399,p>0.05) . The male and Female ratio In both the group was comparable with each other 1.25 and 1.35 which was also comparable with each other (X2=0.129,df=1,p>0.05). The values were significantly higher in Patients of Stroke like Cholesterol 230 ± 7.12 and 205 ± 5.64 (t=38.96,df=399,p<0.001); TG - 169 ± 4.5 and 154 ± 3.45 (t=42.92,df=399,p<0.0001); LDL- 152 ± 5.76 and 132 ± 4.12 (t=47.45,df=399,p<0.001) and HDL was significantly lower in Patients of Stroke i.e. 43 ± 3.54 and 58 ± 5.78 (t=29.82,df=399,p<0.001) as compared to patients without stroke respectively. **Conclusion:** it can be concluded from our study that majority of the patients were old and significantly the patients with stroke were having higher values of Cholesterol, LDL, TG and lower values of HDL as compared to the patients without stroke.
Key Word: Ischemic Stroke, Cholesterol, LDL, TG, Lipid profile.

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INTRODUCTION

Stroke is a rising problem in the developing world. With the advancing life expectancy of people in developing countries, the importance of ischemic stroke will grow as a worldwide problem.[1] Worldwide about 20 million people suffer from stroke each year. 5 million will die as a consequence and 15 million will survive, of those who survive 5 million will be disabled by their stroke.[2] In India, the first population-based study in rural area was conducted in 1990, in Vellore, and the prevalence rate of stroke was reported to be 51/100,000 in rural population. A number of community survey have shown a crude prevalence rate for hemiplegia in the range of 200 per 100,000 persons, nearly, 1.5% of all urban hospital admission, 4.5% of all medical, and around 20% of all neurological cases.[3] Lipid profile is a important marker of Stroke patients so we have studied the lipid profile in

patients with stroke and without stroke to establish its association with the stroke

METHODOLOGY

This was a cross-sectional study carried out in the patents with Ischemic Stroke at Rural area Konkan during the one year period i.e. Sep2017 to Aug 2018. In the one year period there were 201 patients enrolled into the study, all details of the patients like age, sex, lipid profile etc. investigations were carried out, similarly the age matched patients without stroke were also enrolled into study selected from the ward. The statistical analysis done by unpaired t-test and Chi square test analyzed by SPSS 19 version software.

RESULT

Table 1: Distribution of the patients as per the age

Average age	Mean ±SD	p-value
Patients of Stroke (n=201)	60 ± 4.56	t=1.23,df=399,p>0.05
Patients without Stroke (n=200)	61 ± 3.76	

The average age of Patients of Stroke was 60 ± 4.56 Yrs. and Patients without Stroke was 61 ± 3.76 Yrs. which was comparable with each other (t=1.23,df=399,p>0.05)

Table 2: Distribution of the patients as per the sex

Sex	Patients of Stroke (n=201)	Patients without Stroke (n=200)
Male	112	115
Female	89	85
(X^2=0.129,df=1,p>0.05)		

The male and Female ratio In both the group was comparable with each other 1.25 and 1.35 which was also comparable with each other (X^2=0.129,df=1,p>0.05)

Table 3: Distribution of the patients as per the lipid profile

Lipid profile (mg/l)	Patients of Stroke (Mean ±SD) (n=201)	Patients without Stroke (Mean ±SD) (n=200)	p-value
Cholesterol	230± 7.12	205 ±5.64	t=38.96,df=399,p<0.001
TG	169 ± 4.5	154± 3.45	t=42.92,df=399,p<0.0001
HDL	43± 3.54	58 ± 5.78	t=29.82,df=399,p<0.001
LDL	152 ± 5.76	132 ± 4.12	t=47.45,df=399,p<0.001

The values were significantly higher in Patients of Stroke like Cholesterol 230± 7.12 and 205 ±5.64 (t=38.96,df=399,p<0.001); TG -169 ± 4.5 and 154± 3.45 (t=42.92,df=399,p<0.0001); LDL- 152 ± 5.76 and 132 ± 4.12 (t=47.45,df=399,p<0.001) and HDL was significantly lower in Patients of Stroke i.e. 43± 3.54 and 58 ± 5.78 (t=29.82,df=399,p<0.001) as compared to patients without stroke respectively.

DISCUSSION

Stroke is an important cause of disability among adults and is one of the leading causes of death worldwide.[4] A stroke, or cerebrovascular accident, is defined by the abrupt onset of a neurologic deficit that is attributable to a focal vascular cause.[5] Serum lipid levels have an established effect on short term mortality due to strokes. It is important to evaluate the serum lipid levels in both the types of strokes to guide lipid lowering therapy which can reduce incidence of stroke and related mortality by adapting primary and secondary preventive measures among the stroke patients.[6,7] Stroke is a clinical syndrome characterized by rapidly developing symptoms and/or signs of focal and at times global (for patients in coma) loss of cerebral functions, with symptoms lasting more than 24 hours or leading to death with no apparent cause other than that of vascular origin.[8] Age is an important risk factor for stroke. The mean age of stroke onset in India (i.e. 63 years).[9] Cerebral atherosclerosis with atheroma formation is the basic underlying pathophysiologic mechanism in ischemic stroke.[10] In our study we have seen that The average age of Patients of Stroke was 60 ± 4.56 Yrs. and Patients without Stroke was 61 ± 3.76 Yrs. which was comparable with each other (t=1.23,df=399,p>0.05) . The male and Female ratio In both the group was comparable with each other 1.25 and 1.35 which was also comparable with each other (X^2=0.129,df=1, p>0.05) The values were significantly higher in Patients of Stroke like Cholesterol 230±7.12 and205±5.64(t=38.96,df=399,p<0.001);TG-169±4.5 and 154± 3.45 (t=42.92,df=399,p<0.0001); LDL- 152 ± 5.76 and 132 ± 4.12 (t=47.45,df=399,p<0.001) and HDL was

significantly lower in Patients of Stroke i.e. 43± 3.54 and 58 ± 5.78 (t=29.82,df=399,p<0.001) as compared to patients without stroke respectively. This was similar to study by Onkar Nath Rai et al they found increased total cholesterol was present in 30 patients. Similar prevalence (34%) of hyper cholesteremia was reported by Sreenivasulu et al.[11] Total cholesterol was abnormal in 83% of ischemic stroke and 17% of hemorrhagic stroke. This is comparable to study by Sreenivasulu et al, where elevated total cholesterol was seen in 34.5% of patients with Ischemic stroke and 31.2% of patients in Haemorrhagic stroke.[11] Qizilbash et al, concluded that there was a significant association between serum lipid profile and prevalence of stroke. [12] Tanveer et al, proved that hyperlipidemia was present in 16% patients of stroke.[13] In a study by Siddeswari et al, dyslipidemia in stroke patients was 14%.[14] Most of the patients were having low HDL (which is a risk factor for stroke. The mean TC and LDL-C levels were significantly much higher in the ischemic stroke patients when compared to patients with haemorrhagic stroke by Gnanamoorthy K et al, (183.7±34.5 versus 148.5±30.6 and 118.7±26.7 versus 81.4±22.0).[15] This was similar to the present study results.

CONCLUSION

it can be concluded from our study that majority of the patients were old and significantly the patients with stroke were having higher values of Cholesterol, LDL, TG and lower values of HDL as compared to the patients without stroke.

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