Original Article

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Frequency of Dyslipidemia in Hemorrhagic Stroke

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ABSTRACT

Objective: To determine the frequency and pattern of dyslipidemias among patients with hemorrhagic stroke. **Study Design:** Cross sectional study. **Settings:** Department of Medicine, Sheikh Zayed Hospital, Rahim Yar Khan. **Duration:** Six months from 1st May to 31st October 2015. **Methodology:** The cases of both genders and age 40-70 years with hemorrhagic stroke assessed on CT brain were selected via non probability consecutive sampling. These cases were then assessed for dyslipidemias (high serum LDL-C, hypertriglyceridemia, hypercholesterolemia and low HDL). **Results:** In this study out of 156 cases, 92 were males and 64 females. The mean age was 61.47±6.93 years and mean BMI was 26.68± 3.32 kg/m^2. Dyslipidemias were seen in 9 out of 156 (5.77%) cases. Out of 9 cases of dyslipidemias, 5 (55.56%) cases had increased cholesterol. Dyslipidemias were seen in 07 (7.61%) males vs 02 (03.12%) females with p= 0.23. There was near significant difference in terms of BMI where it was seen in 03 (9.37%) cases with BMI 25-30 as compared to 06 (04.83%) cases with BMI < 25 with p= 0.09. **Conclusion:** Hemorrhagic stroke is a debilitating health issue. Dyslipidemias are not that common in these cases and are found more in cases with BMI 25-30.

Keywords: Hemorrhagic stroke, Dyslipidemias, BMI

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INTRODUCTION

Stroke is one of the most common presentations to the Emergency departments, Neurology wards and clinics. It is a medical emergency and can be highly morbid and even fatal and depends upon the site of involvement and extent of the damage. It is caused by decreased perfusion to the brain cells either by the interruption of the blood supply by a clot (ischemic stroke) or due to rupture of the blood vessels (hemorrhagic stroke).[1-3]

The event is usually sudden and can be progressive. The signs and symptoms include cessation of activity of any cranial nerve or paralysis of one side of the body or limb. There are number of risk factors that can result in its occurrence and include Diabetes Mellitus, Hypertension, Smoking, deranged lipid profile, thromboembolism, arrhythmias etc.[4-6]

Computed tomography (CT) is the first investigation of choice; though magnetic resonance imaging (MRI) may be needed especially in cases of ischemic stroke in the brain stem area. The event is usually irreversible due to the lack of regeneration of the brain tissue; hence earlier steps needed to be taken for primary prevention of the disease. Dyslipidemias have been associated as one independent risk factor to lead to ischemic stroke, but their role in cases of hemorrhagic stroke is unclear and variable results have gained the attention to quantify its burden, so that if it is a significant factor, it should be managed accordingly to decrease the morbidity in such cases.[7-10]

OBJECTIVE

To determine the frequency and pattern of dyslipidemias among patients with hemorrhagic stroke

METHODOLOGY

Study Design: Cross sectional study.

Settings: Department of Medicine, Sheikh Zayed Hospital, Rahim Yar Khan.

Duration: Six months from 1st May to 31st October 2015.

Sample Technique: Non probability consecutive sampling.

Sample Size: There were 156 cases.

Inclusion Criteria: The cases of both genders and age 40-70 years with hemorrhagic stroke assessed on CT brain plain as hypodense area in 2 or more consecutive slides were selected

Exclusion Criteria: The cases with history of trauma, and those with brain tumors and BMI >30 kg/m^2 and with end stage renal or liver failure were excluded.

Methods: The cases of both genders and age 40-70 years with hemorrhagic stroke assessed on CT brain were selected via non probability consecutive sampling. These cases were then assessed for dyslipidemias (high serum LDL-C, hypertriglyceridemia, hypercholesterolemia and low HDL).

Statistical Analysis: All the collected data was entered into SPSS version 10 and analyzed. The numerical data was presented as mean and SD and the qualitative data as frequency and percentages. Effect modifiers were controlled by stratification of data. Post stratification chi square test was applied taking p value <0.05 as significant.

RESULTS

In this study out of 156 cases, 92 were males and 64 females. The mean age was 61.47±6.93 years and mean BMI was 26.68± 3.32 kg/m^2. Dyslipidemias were seen in 9 out of 156 (5.77%) cases as shown in figure 1.

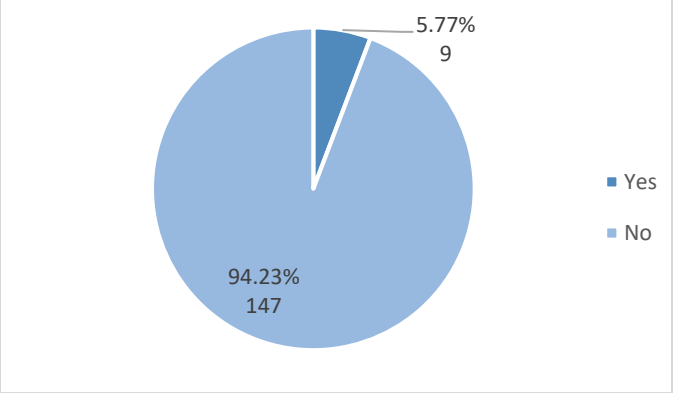

Figure No. 1 Frequency of dyslipidemias (n=156)

Out of 9 cases of dyslipidemias, 5 (55.56%) cases had increased cholesterol and 2 cases each (22.22%) had increased triglycerides and decreased HDL and none of the case had increased LDL cholesterol as shown in figure 2.

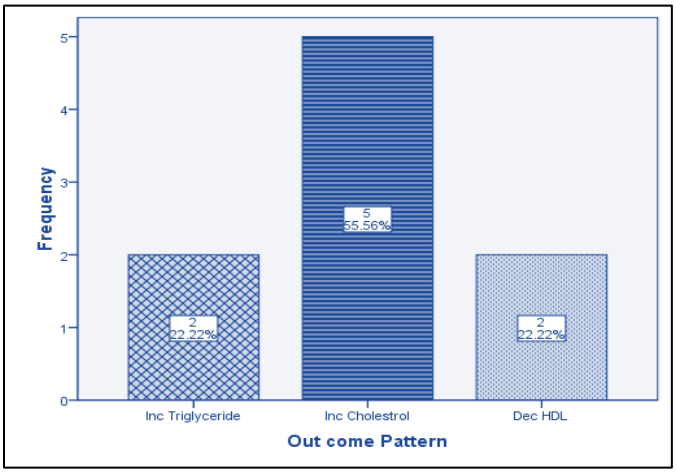

Figure 2: Pattern of dyslipidemias (n=156)

Dyslipidemias were seen in 07 (7.61%) males vs 02 (03.12%) females with p= 0.23 (table 01).

Table 1: Dyslipidemia and gender (n= 156)

Gender	Dyslipidemia		Total	p value
	Yes	No		
Male	07 (7.61%)	85 (92.39%)	92	0.23
Female	02 (03.12%)	62 (96.88%)	64	
Total	09 (05.77%)	147 (94.23%)	156	

These were more common in age group 40-55 years affecting 04 (6.78%) cases vs 05 (05.15%) cases in age 56-70 years with p= 0.48.

Table 2: Dyslipidemia and age (n= 156)

Age	Dyslipidemia		Total	p value
	Yes	No		
40-55	04 (6.78%)	55 (92.39%)	59	0.48
56-70	05 (05.15%)	92 (96.88%)	97	
Total	09 (05.77%)	147 (94.23%)	156	

There was near significant difference in terms of BMI where it was seen in 03 (9.37%) cases with BMI 25-30 as compared to 06 (04.83%) cases with BMI < 25 with p= 0.09 as in table 03.

Table 3: Dyslipidemia and BMI (n= 156)

BMI	Dyslipidemia		Total	p value
	Yes	No		
25-30	03 (9.37%)	29 (90.63%)	32	0.09
<25	06 (04.83%)	118 (96.88%)	124	
Total	09 (05.77%)	147 (94.23%)	156	

DISCUSSION

Stroke is the top cause of morbidity and the 2nd leading cause of death globally. There are number of reversible and irreversible risk factors leading to this and dyslipidemias are one potential modifiable risk factor.[10]

In the present study the dyslipidemias were seen in 9 (5.77%) cases out of 156 cases, that presented with hemorrhagic stroke. There were variable results in the past regarding this context. According to a study done by Bilic I et al, relatively higher prevalence was seen and was observed in 20.5% of the cases.[11] While in another study done by Fawi G et al these dyslipidemias were observed in 29.5%.[12] Variability of these results can be due to the difference in the operational definitions.

Out of the 9 cases that developed hyperlipidemia in patients with hemorrhagic stroke, in this study, the maximum was in the group of high cholesterol level which was found in 5 cases.

This finding was consistent with the studies carried out by Khan H et al and Eapen RP et al who found higher level of cholesterols in patients with hemorrhagic stroke 11% and 17% respectively.[13-14]

In this study 2 cases had HDL cholesterol less than normal limit. This was consistent with the study carried out by Waked IS.[15] In contrast a study carried out by Khan NA found very high number of cases with decreased HDL (29.4%).[16] This again confirmed by the stats that lower level of HDL cholesterol which is stabilizing lipid and avoid detrimental effect, can predispose to hemorrhagic stroke.

There was near significant difference in terms of BMI where it was seen in 03 (9.37%) cases with BMI 25-30 as compared to 06 (04.83%) cases with BMI < 25 with p= 0.09. This was also shown that the higher the BMI and higher were the chances of dyslipidemia; and all the other studies found this difference as statistically significant.

The reason of the present study variability can be explained by the factor that the cases with BMI more than 30 were excluded from this study.[16-18]

Dyslipidemias were seen in 07 (7.61%) males vs 02 (03.12%) females with p= 0.23. This was also seen by the studies carried out in past where male gender was found to me more associated with dyslipidemia.

The reason of this can be due to higher number of alcoholics, higher incidence of HTN, and more of the smoking habits that can impact the lipid profiles.[19-20]

CONCLUSION

Hemorrhagic stroke is a debilitating health issue. Dyslipidemias are not that common in these cases and are found more in cases with BMI 25-30.

CONFLICT OF INTREST

There is no conflict of interest in this study.

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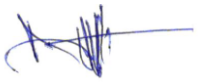
Dr. Akmal Hussain Associate Professor, Medicine Shaikh Zayed Medical College, Rahim Yar Khan	Literature Review	
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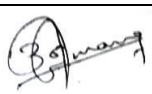
Dr. Habib-ur-Rehman Assistant Professor, Medicine Shaikh Zayed Medical College, Rahim Yar Khan	Data Analysis	
Dr. Noreen Nasim Assistant Professor, Medicine Shaikh Zayed Medical College, Rahim Yar Khan	Data Analysis	
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