ORIGINAL ARTICLE

To Determine the Frequency of Low HDL-C in Ischemic Stroke

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ABSTRACT

Aim: To determine the frequency of low HDL-C in ischemic stroke.
Study Design: Descriptive, Cross-sectional study
Setting: Department of Medicine, Nishtar Medical University/Hospital, Multan.
Duration of study; Six months from 10-01-2016 to 10-07-2016.
Sampling Technique: Non-probability, consecutive sampling.
Results: Of these 148 study cases, 66 (44.6%) were male patients and 82 (55.4%) were female patients. Mean serum HDL-C level was noted to be 40.22 ± 3.85 mg/dl with ranges of 32 mg/dl to 46 mg/dl. Low serum HDL-C level was seen in 64 (43.2%) cases.
Conclusion: High frequency of HDL–C has been seen in this study. Low serum HDL-C was significantly associated with gender, diabetes, obesity and hypertension.
Keywords: Ischemic stroke, HDL-C , diabetes.

INTRODUCTION

Cerebrovascular accident (CVA) is defined as the rapid appearance of a focal deficit of brain function. In patients presenting with a stroke, 85% will have a cerebral infarction due to insufficient blood supply to part of the brain and the rest will have intracerebral haemorrhage. In United States, ~200,000 deaths each year occurred and it is a major aetiology of disability[1]. The global incidence of stroke is about 200 cases/ 100,000 inhabitants[2]. Major risk factors are hypertension, dyslipidemia and diabetes mellitus and considered as main targets for primary and secondary prevention of stroke[3,4]. Dyslipidemia is an important risk factor for CVA[5]. Atherosclerotic stroke is the end result of many abnormal processes in which HDL-C is a main component. It is recognized that low HDL-C is an important risk factor in relation to atherosclerosis[6].

METHODOLOGY

This descriptive, Cross-sectional study was conducted in the Department of Medicine, Nishtar Medical University/Hospital, Multan for a period of six months from 10-01- 2016 to 10-07-2016. Sample size is 148 cases, calculated by using following formula;
$n= z^2pq/d^2$ (Where z=1.96, p=43.7% (frequency of low HDL-C in ischemic stroke) , q=100-p, d= 8% at 95% confidence level). Non probability, consecutive sampling technique used.
Inclusion Criteria: Both male and female patients in age range of 30-65 years and patients having stroke according to criteria.
Exclusion Criteria: Patient having CT brain plain findings suggestive of SOL and patient taking Statin therapy in last two months
Data collection and analysis: A specialized Performa has been developed to record the findings of this study. All the cases of stroke, fulfilling inclusion criteria were recruited from in patient Department of Medicine Nishtar Medical University/Hospital, Multan. Proper permission has been taken from Institutional Ethical Committee to conduct this study. Informed consent was taken from each patient/attendant to participate in this study. Specific history & examination regarding focal neurological deficit as defined in operational definition and their duration was inquired by researcher himself from all patients. Plain CT Brain was analyzed by consultant physician having at least 3 year post fellowship experience for exclusion of hyper dense area and SOL brain. Data was entered and analyzed by computer program SPSS-16. P-value equal or less than 0.05 was considered as significant.

Received on 06-06-2018
Accepted on 12-11-2018

RESULTS

This study included a total of 148 patients with ischemic stroke according to inclusion criteria of this study. Of these 148 cases, 66 (44.6%) were male patients and 82 (55.4%) were female patients.

Table 1: Cases according to diabetes. (n=148)

Diabetes	n	%age
Yes	35	23.6
No	113	76.4
Total	148	100

Table 2: Cases according to obesity. (n=148)

Obesity	n	%age
Yes	22	14.9
No	126	85.1
Total	148	100

Table 3: Cases according to hypertension. (n=148)

Hypertension	n	%age
Yes	29	19.6
No	119	80.4
Total	148	100

Table 4: Cases according to low HDL-c. (n=148)

Low HDL–C	n	%age
Yes	64	43.2
No	84	56.8
Total	148	100

Table 5: Stratification of low HDL-C according to diabetes. (n=148)

Diabetes	Low HDL-C	
	Yes(n=64)	No(n=84)
Yes(n=35)	28	07
No(n=113)	36	77
Total	148	

Table 6: Stratification of low HDL-C according to obesity. (n=148)

Hypertension	Low HDL-C	
	Yes(n=64)	No(n=84)
Yes (n=29)	22	07
No(n=119)	42	77
Total	148	

P value 0.00

Table 7: Stratification of low HDL-C in relation to hypertension.

Hypertension	Low HDL-C	
	Yes(n=64)	No(n=84)
Yes (n=29)	15	07
No(n=119)	49	77
Total	148	

P value 0.00

DISCUSSION

Out of 148 cases, 66 (44.6%) were males and 82 (55.4%) were females. Khan et al [7] also reported females dominance with 61.9%. These findings are in accordance to that of our study. However, Luo et al[8] from China have observed males dominance which is not in favor of our study results. Soyama et al[9] also reported females dominance which is in favor with that of our study results. Sacco et al[10] reported 55 % female gender preponderance which is in favor of our study results.

Majority of our results showed the age ranges of 51-65 years. Khan et al [9] reported 58.1 ± 15.3 years which is near to our study. Soyama et al[9] from Japan also reported that mean age of men was 2.6 years higher than that of women. Our study is in favor of the results with Soyama et al [9]. Abid et al [11] reported mean age of 55.9 ± 13.8 years with ischemic stroke which is in accordance to that of our study results.

In Our study, 35 (23.6%) cases were diabetic. Khan et al[7] reported 20.5 % patients with diabetes which is close to our study results. Luo et al[8] from China reported 33 % diabetes. Abid et al[11] reported 9.6 % patients with ischemic stroke as having diabetes which is lesser than that of our study. Sacco et al[10] reported 33 % diabetes in patients with ischemic stroke.

In our study, 22 (14.9%) were obese and 29 (19.6%) were hypertensive patients. Khan et al[7] reported 74.6% hypertension which is quite higher than that of our study. Abid et al[11] reported 10.1% hypertension in patients with ischemic stroke which is near to our study. Low serum HDL-C level was noted in 64 (43.2%) cases. Khan et al[9] observed 43.7% cases with ischemic stroke having low serum HDL-C levels which is in accordance with that of our results. Low serum HDL-C was significantly lower in patients having diabetes, the same has been observed by Luo et al[8] from China. Sacco et al[10] observed 47% low serum HDL-C which is in favor of our results. Khalil et al[12] from Egypt observed 29.5% low serum HDL-C and also observed low serum HDL-C was maximum in male cases which is similar to our study.

CONCLUSION

High frequency of low serum HDL-C has been observed in our study. Low serum HDL-C was significantly correlated with gender, diabetes, obesity and hypertension. Early diagnosis and in time management can help to reduce complications.

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