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ORIGINAL ARTICLE

Frequency of Hypoalbuminemia and Mortality Rate in Cases of Acute Ischemic Stroke

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ABSTRACT

Objective: To find out the frequency of hypoalbuminemia and mortality rate in cases of acute ischemic stroke.

Material and methods: Between April 2020 to October 2020, total 180 patients of acute ischemic stroke, age between 40-60 years of both gender were selected from Department of Medicine, Bahawal Victoria Hospital, Bahawalpur. Type of study was cross sectional. Hypoalbuminemia and mortality rate was assessed.

Results: In present study, mean age of the patients was 49.78 ± 4.43 years. Out of 180 patients of acute ischemic stroke, hypoalbuminemia was found in 68 (38%) patients. Mortality rate was 10 (26%) and rest of the patients were alive. Hypoalbuminemia was found in 28 (28.28%) patients and 40 (49.38%) patients respectively in age groups 40-50 years and 51-60 years. Association of hypoalbuminemia with age group was significant (P = 0.005).

Conclusion: Results of this study showed a higher rate of hypoalbuminemia and mortality in cases of acute ischemic stroke. Hypoalbuminemia was more common in 5th decade and significant association of hypoalbuminemia with age was noted. Most of the stroke patients were male and hypoalbuminemia was also common in male patients. Significant association of hypoalbuminemia with diabetes mellitus was observed.

Keywords: Hypoalbuminemia, stroke, ischemic stroke, mortality

INTRODUCTION

Stroke is a world-wide health problem. Out of 20 million people who suffer from stroke almost 5 million among them do not survive yearly.[1-2] It has become a leading cause of disability and second most common cause of death. [3] Around 15% - 30% people suffering from stroke are permanently impaired functionally or disabled with 20 % require institutional care. [4]

The non-functioning of a part of neuronal tissue in the vascular occlusion is caused by Acute ischemic stroke.[5] It occurs due to sudden loss of blood supply to the brain as suggested by Pathophysiology of acute ischemic brain stroke (AIS). The affected body part suffers from paralysis resulting from neuronal necrosis due to Ischemia.[6]

Clinical outcomes (like functional recovery, recurrences and medical complications) and mortality in patients of stroke have Hypoalbuminemia as a predictive factor.[7]

Up to 19% of stroke patients had Hypoalbuminemia and also low serum albumin levels were frequently found out in hospitalized patients.[8]

Objective of this study was to assess hypoalbuminemia and mortality rate in cases of acute ischemic stroke. Results of this study may help by early screening of hypoalbuminemia and its management in cases of acute ischemic stroke. We may be able to reduce morbidity and mortality in such cases.

MATERIAL AND METHODS

Between April 2020 to October 2020, total 180 patients of acute ischemic stroke, age between 40-60 years of both gender were selected from Department of Medicine, Bahawal Victoria Hospital, Bahawalpur. Type of study was cross sectional. Cases of decompensated liver cirrhosis, cases of nephrotic syndrome, cases with raised cholesterol levels were excluded from the study.

An approval was taken from review committee before starting the study. History regarding diabetes mellitus and duration of symptoms was taken. Weight and height was taken to calculate BMI. Five ml blood sample was taken and send to laboratory for serum albumin levels and findings were noted on pre-designed proforma along with demographic profile of the patients.

Analysis of data was done in SPSS version 20. Mean of age was calculated while frequencies were calculated for categorical variables.

RESULTS

In present study, mean age of the patients was 49.78 ± 4.43 years. Out of 180 patients of acute ischemic stroke, hypoalbuminemia was found in 68 (38%) patients. (Fig. 1) Mortality rate was 10 (26%) and rest of the patients were alive. (Fig. 2) Tow age groups 40-50 years and 41-60 years were created. Total 99 (55%) patients belonged to age group 40-50 years while 81 (45%) patient belonged to age group 51-60 years. Hypoalbuminemia was found in 28 (28.28%) patients and 40 (49.38%) patients respectively in age groups 40-50 years and 51-60 years. Association of hypoalbuminemia with age group was significant (P = 0.005). (Table 1) Male patients were 115 (63.89%) while female patients were 65 (36.11%). Hypoalbuminemia was found in 39 (33.91%) male patients while in 29 (44.62%) female patients. But no association (P = 0.200) between hypoalbuminemia and gender was noted. (Table 2) Two groups were created according to duration of symptoms i.e. 1-18 hours group and 19-36 hours group. Total 85 (47.22%) patients belonged to 1-18 hours group while 95 (52.78%) patients belonged to 19-36 hours group. Hypoalbuminemia was seen in 31 (36.47%) patients and 37 (38.95%) patients respectively. But insignificant (P = 0.760) association between hypoalbuminemia and duration of symptoms was noted. (Table 3) Total 75 (41.67%) patients were diabetic and hypoalbuminemia was found in 42 (56%) patients. While non-diabetics were 105 (58.33%) and hypoalbuminemia was noted in 26 (24.76%) patients. Hypoalbuminemia was significantly (P = 0.000) associated with diabetes mellitus. (Table 4) Obese were 59 (32.78%) and non-obese were 121 (67.22%). Hypoalbuminemia was seen in 43 (72.88%) obese patients while in 25 (20.66%) non-obese patients. Statistically significant (P = 0.000) association between hypoalbuminemia and obesity was found. (Table 5)

Fig 1: Frequency of hypoalbuminemia

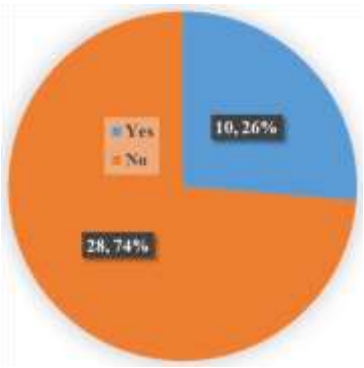

Fig 2: Frequency of mortality

Table 1: Association of hypoalbuminemia with age group

Age group	Hypoalbuminemia		Total	P. value
	Yes (%)	No (%)		
40-50	28 (28.28)	71 (71.72)	99 (55)	0.005
51-60	40 (49.38)	41 (50.62)	81 (45)	
Total	68 (38)	112 (62)	180	

Table 2: Association of hypoalbuminemia with gender

Gender	Hypoalbuminemia		Total	P. value
	Yes (%)	No (%)		
Male	39 (33.91)	76 (66.09)	115 (63.89)	0.200
Female	29 (44.62)	36 (55.38)	65 (36.11)	
Total	68 (38)	112 (62)	180	

Table 3: Association of hypoalbuminemia with duration of symptoms

Duration of symptoms (Hours)	Hypoalbuminemia		Total	P. value
	Yes (%)	No (%)		
1-18	31 (36.47)	54 (63.53)	85 (47.22)	0.760
19-36	37 (38.95)	58 (61.05)	95 (52.78)	
Total	68 (38)	112 (62)	180	

Table 4: Association of hypoalbuminemia with diabetes mellitus

Diabetes mellitus	Hypoalbuminemia		Total	P. value
	Yes (%)	No (%)		
diabetic	42 (56)	33 (44)	75 (41.67)	0.000
Non-diabetic	26 (24.76)	79 (75.24)	105 (58.33)	
Total	68 (38)	112 (62)	180	

Table 5: Association of hypoalbuminemia with obesity

Obesity	Hypoalbuminemia		Total	P. value
	Yes (%)	No (%)		
Obese	43 (72.88)	16 (27.12)	59 (32.78)	0.000
Non-obese	25 (20.66)	96 (79.34)	121 (67.22)	
Total	68 (38)	112 (62)	180	

DISCUSSION

Objective of present study was to find out the frequency of hypoalbuminemia and mortality rate in cases of acute ischemic stroke. Mean age of the patients was 49.78 ± 4.43 years.

Tow age groups 40-50 years and 41-60 years were created. Total 99 (55%) patients belonged to age group 40-50 years while 81 (45%) patient belonged to age group 51-60 years. Hypoalbuminemia was found in 28 (28.28%) patients and 40 (49.38%) patients respectively in age groups 40-50 years and 51-60 years. Association of hypoalbuminemia with age group was significant (P = 0.005). In study of Butt A et al,[9] mean age of the patients was 55.93±8.73 years which is comparable with our study. In study of Muneer H et al[10] mean age of patients of acute ischemic stroke was 36±11.8years and age range was 18-50 years and most common age group was 35-44 years. While in our study age range was 40-60 years and most of the patients belonged to age group 51-60 years.

In study of Javid RA et al[11] mean age of the patients of acute ischemic stroke was 50.89±5.876 years. In our study hypoalbuminemia was found in 68 (38%) patients and mortality rate was 10 (26%). In one study by Butt A et al,[9] hypoalbuminemia was found in 41.6% patients and 28.85% patients were expired which is comparable with our study. Vahedi A et al[12] reported frequency of hypoalbuminemia as 43.8% while 25.9% patients were expired during hospital stay. Sani et al[13] found hypoalbuminemia in 77.33% patients out of 75 patients and death rate was 22.41%.

Muneer H et al[10] reported frequency of hypoalbuemnemia as 35% in their study. In study of Dziedzic T et al,[14] Hypoalbuminemia was found in 45.5% patients of acute ischemic stroke. In study of Javid RA et al,[11] out of 382 patients of ischemic stroke, hypoalbuminemia was found in 42% patients. In our study male patients were 115 (63.89%) while female patients were 65 (36.11%). Hypoalbuminemia was found in 39 (33.91%) male patients while in 29 (44.62%) female patients. But no association (P = 0.200) between hypoalbuminemia and gender was noted. In study of Butt A et al,[9] 70(56%) were male and 55(44%) were females. In study of Muneer H et al[10] 60% patients were males 40% were females and hypoalbuminemia was common in male patients. In study of Javid RA et al,[11] male patients were 60.73% while female patients were 39.27% and Hypoalbuminemia was more common in male patients. Chen Y et al[15] assessed 70 patients of acute ischemic stroke for albumin levels and found hypoalbuminemia in 56% patients. Davalos et al[16] found decreased serum albumin levels in 7.7% patients out of 104 patients of acute ischemic stroke. Gariballa et al[17] assesed 201 patients of acute ischemic stroke for serum albumin and found hypoalbuminemia in 19% patients.

CONCLUSION

Results of this study showed a higher rate of hypoalbuminemia and mortality in cases of acute ischemic stroke. Hypoalbuminemia was more common in 5th decade and significant association of hypoalbuminemia with age was noted. Most of the stroke patients were male and hypoalbuminemia was also common in male patients. Significant association of hypoalbuminemia with diabetes mellitus was observed.

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