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"A STUDY ON SERUM HOMOCYSTEINE LEVELS IN CEREBROVASCULAR ACCIDENTS"

Kumanan J	Post Graduate, Department of General Medicine, Meenakshi Medical College Hospital and Research Institute, Kancheepuram
Ramachandran RM	Post Graduate, Department of General Medicine, Meenakshi Medical College Hospital and Research Institute, Kancheepuram
Pandiya Meena E	Post Graduate, Department of General Medicine, Meenakshi Medical College Hospital and Research Institute, Kancheepuram
Ajay Rathoon Ilango*	Senior Resident, Department of General Medicine, Saveetha Medical College and Hospital, Chennai *Corresponding Author
Kirubakaran S	Assistant Professor, Department of Community Medicine Aarupadai Veedu Medical College and Hospital, Pondicherry

ABSTRACT

Background: Stroke is a common worldwide health problem. It is major cause of Morbidity, mortality and disability in developed as well as developing countries. The reason for the decline in the incidence of major stroke in recent years is unclear. Hence the study is undertaken with the following aim as to study serum homocysteine levels in Cerebrovascular accidents as a risk factor for stroke.

Methodology: All patients of cerebrovascular accidents admitted to Meenakshi medical college hospital from January 2015 to October 2016. To whom detailed history taking and thorough examination was done.

Results: There is significant association between the Serum Homocyteine level and Blood pressure. And the same significance is found with Life style also.

Conclusion: . It is therefore important to use serum homocysteine level as an important tool to investigate all cases of cerebrovascular accidents and also in those who are at risk of developing stroke.

KEYWORDS : Cerebrovascular accidents, Serum Homocysteine, Blood Pressure, Diabetes mellitus, Lifestyle.

Introduction:-

Stroke is a common worldwide health problem. It is major cause of Morbidity, mortality and disability in developed as well as developing countries[1, 2, 3]. After coronary heart disease and all cancers, stroke is the third common cause of death in the world, causing about 4 million deaths in 1990, and three quarters of them in Developing countries[3,4].

Hyperhomocysteinemia causes increased arterial blood pressure thereby increasing the risk of cerebrovascular accidents. Plasmahomocysteine levels are strongly influenced by diet, as well as by genetic factors.[5] The reason for the decline in the incidence of major stroke in recent years are unclear, may be due to the treatment of risk factors such as hypertension and elevated cholesterol.[4] Hence the study is undertaken with the following aim as To study serum homocysteine levels in Cerebrovascular accidents as a risk factor for stroke.

Materials and Methods:-

Source of data:

All patients of cerebrovascular accidents admitted to Meenakshi medical college hospital from January 2015 to October 2016.

Methods of collection of data:

Prior to admission to the study, a detailed history was taken and a thorough physical examination was done. Serum homocysteine was estimated by enzymatic photometry method. 4 ml blood was collected from the patient and serum was separated immediately for the analysis.

Inclusion & Exclusion criteria:

All the patients admitted to Meenakshi medical college hospital with focal neurological deficit due to suspected Cerebrovascular accident. And patients other thant the study diagnosis are excluded.

Statistical Analysis:-

Descriptive frequencies and percentages was performed. Chi Square test was performed for test of significance. Epi info Software package was used for the analysis.

Ethical Issues:-

Institutional Ethics Committee approval was obtained.

Results:-

In this study we have taken 50 patients of whom 25 patients were below the age of 60 years and other 25 patients above the age of 60 years.

Table 1: Comparison of Serum Homocysteine level with Blood Pressure

Blood pressure	No. of Pat ients	Homocysteine level Mean ± SD
Hypertensive	27	30.33±6.69
Normotensive	23	25.13±8.99
Total	50	27.94±8.19

$p < 0.05$

Table 1,describes that there were 27 hypertensive patients and 23 normotensive patients. the mean homocystine level was higher in hypertensive patients which was 30.33 than in normotensive patients which was 25.13. This difference was statistically significant. ($p<0.05$)

Table 2: Comparison of Serum Homocysteine level with Diabetes Mellitus

Diabetes status	Number of Patients	Homocysteine level Mean ± SD
Diabetes	20	28.8±10.04
Non diabetes	30	27.37±6.79
Total	50	27.94±8.19

Table 2, we had 20 diabetic patients and 30 non –diabetic patients. The mean homocystine level was higher in diabetic patients which

were 28.8 than the non-diabetic patients which was 27.37. But this difference was not statistically significant. (p>0.05)

Table 3: Comparison of serum homecystine level with Lifestyle

Life style	Number of Patients	Homocysteine level Mean ± SD
Sedentary	20	33.05±5.73
Active	30	24.53±7.84
Total	50	27.94±8.19

p < 0.05

Table 3, we had 20 patients who had sedentary lifestyle and 30 patients who had active lifestyle. The mean homocystine level was greater in patients who had sedentary lifestyle which was 33.05 than that of the patients who had active lifestyle which was 24.53. This difference was statistically highly significant. (p<0.01)

Discussion:-

Many studies have showed that increased homocysteine represents an independent risk factor for coronary, cerebrovascular and peripheral arterial disease [6,7,8]. Hyperhomocysteinemia is one of the newly recognized factors that increases the risk of vascular disease. Mechanisms by which hyperhomocysteinemia increases risk of cerebrovascular accidents are not clear, but several possible mechanisms have been proposed[3].

In our study, 27 (54%) patients were hypertensives and 23 (46%) were normotensives. Mean serum homocysteine levels were higher in hypertensive patients (30.33) than normotensive patients (25.13). Our results were similar to findings of Narang et al [9], Modi et al[10], Graham et al[11], Olusegun et al[3], Nigel et al[8], Nygard et al[12], Perry et al[6] and Mani low et al[12]. However Kittner et al did not find definite evidence of an increased homocysteine in hypertensive patients.[13]

In our study, only 20 (40%) patients belonged to diabetic group and 30 (60%) patients belonged to non-diabetic group. Mean of serum homocysteine levels were 28.8 in diabetic group which was higher than in non diabetic group which was 27.37. Our findings were consistent with study of Narang et al [9]and Modi et al[10].

In our study we had 20 (40%) patients who had sedentary lifestyle and 30 (60%) patients who had active lifestyle. The mean homocystine level was greater in patients who had sedentary lifestyle which was 33.05 than that of the patients who had active lifestyle which was 24.53. This difference was statistically highly significant. (p<0.01) Perry IJ suggested association between hyperhomocysteinemia and established vascular risk likely to reflect lifestyle factor[6].

Conclusion:-

In conclusion the present study revealed that hyperhomocysteinemia appears to be an important risk factor for cerebrovascular accidents. It is therefore important to use serum homocysteine level as an important tool to investigate all cases of cerebrovascular accidents and also in those who are at risk of developing stroke.

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