

Prevalence of cerebrovascular accident in patients with chronic kidney disease on Hemodialysis in Coastal areas of Rural Puducherry.

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ABSTRACT:

Chronic kidney disease is a condition associated with persistent defect in kidney structure and function for a duration greater than 3 months. CKD is a global problem, 16th most common cause of mortality worldwide effecting 8-16% of population. The risk of stroke is higher in patients with CKD on haemodialysis. A cross sectional observational study is done on 80 patients with CKD on hemodialysis who admitted to Department of General Medicine, Vinayaka Mission's Medical College and Hospital, Karaikal for a duration of 2 years i.e. from October 2020 to October 2022. Out of 80 cases 19 patients presented with cerebrovascular accidents. The patients of CKD of age group 18-65 years who developed CVA were included in the study. Out of 26.32% of study population who developed CVA due to hemorrhage, 3 patients had intraparenchymal haemorrhage and remaining 2 patients developed stroke due to subdural haemorrhage. Out of 14 patients who developed CVA due to infarcts, 8 patients had cortical infarcts accounting for 57.14% of the study population and the remaining 6 patients had subcortical infarcts accounting for 42.86% of the study population highlighting the need for prompt diagnosis and treatment of haemorrhagic stroke in CVD patients.

INTRODUCTION:

Chronic kidney disease is a condition associated with persistent defect in kidney structure and function for a duration greater than 3 months. CKD is a global problem, 16th most common cause of mortality worldwide effecting 8-16% of population. The risk of stroke is higher in patients with CKD on haemodialysis. This is further precipitated by the factors like hypertension, diabetes mellitus, atherosclerosis, anaemia, hyperlipidaemia, protein energy malnutrition as per several studies. In some studies, Stroke usually presents as an infraction or haemorrhage sometimes a combination of both infraction and haemorrhage. Involvement of carotid artery or basilar artery may lead to infraction. Thalamus and basal ganglia are the more common regions involved in haemorrhagic stroke. It is observed that the risk of cerebrovascular disease is about 23.75% among CKD patients in some study. Hypertension, anaemia, diabetes, smoking and hyperlipidaemia were important contributing factors for stroke. So the present study is done to observe the Prevalence of cerebrovascular accident in patients with chronic kidney disease on Hemodialysis in Coastal areas.

AIM AND OBJECTIVES:

To estimate the prevalence of cerebrovascular accident in patients with chronic kidney disease on Hemodialysis in Coastal areas.

MATERIALS AND METHODS:

A cross sectional observational study is done on 80 patients with CKD on hemodialysis who admitted to Department of General Medicine, Vinayaka Mission's Medical College and Hospital, Karaikal for a duration of 2 years i.e. from October 2020 to October 2022. Out of 80 cases 19 patients presented

with cerebrovascular accidents. The patients of CKD of age group 18-65 years who developed CVA were included in the study.

RESULTS:

FIGURE 1: AGE DISTRIBUTION OF STUDY PARTICIPANTS

TABLE 1: DISTRIBUTION OF PATIENTS BASED ON SEX DISTRIBUTION

Gender	N	%
Male	16	84.21%
Female	3	15.79%
Total	19	100%

TABLE 2: DISTRIBUTION OF PATIENTS BASED ON THE FREQUENCY OF DIALYSIS

On Dialysis	F	%
1 -6 months	10	52.63%
7-12 months	7	36.84%
>12 months	2	10.52%
Total	19	100%

TABLE 3: DISTRIBUTION OF PATIENTS BASED ON FREQUENCY OF DIALYSIS PER WEEK

No. of time per week	N	%
One time	3	15.78%
Two times	13	68.42%
Three times	3	15.78%
Total	19	100%

TABLE 4: DISTRIBUTION OF PATIENTS BASED ON INCIDENCE OF RISK FACTORS

	Incidence in patients
Hypertension	86.3%
Anaemia	54.6%
Diabetes Mellitus	65.5%

Dys-lipidemia	18.4%
Smoker	18.6%

FIGURE 2: DISTRIBUTION OF PATIENTS BASED ON INCIDENCE OF TYPE OF CEREBROVASCULAR ACCIDENTS

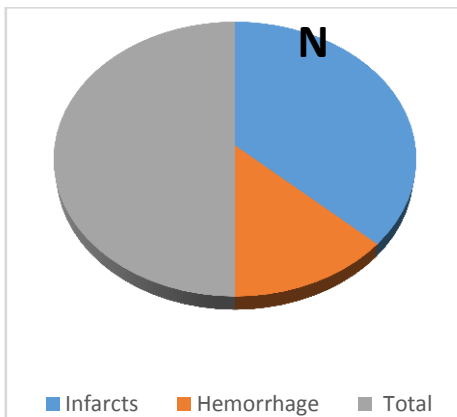
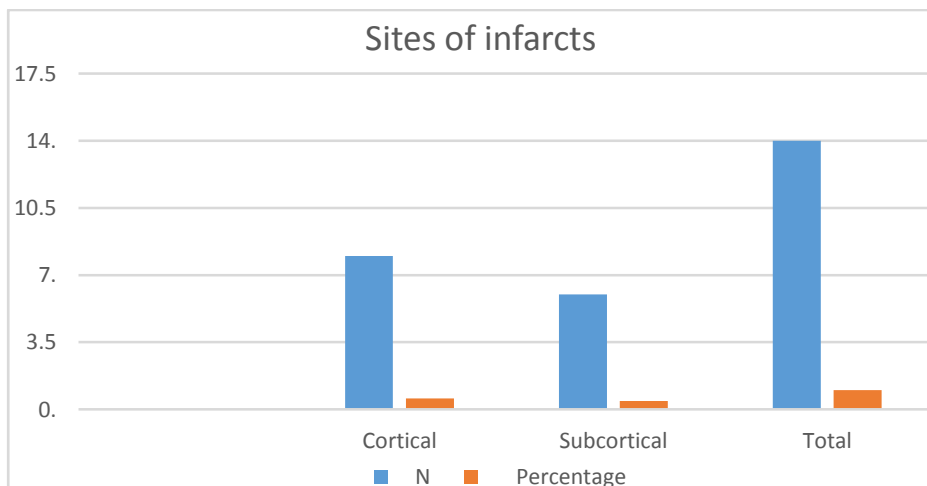


TABLE 5: DISTRIBUTION OF PATIENTS BASED ON SITE OF HEMORRHAGE

Types and sites of Hemorrhage	N	Percentage
Subdural (Fronto parietal)	2	40%
Intraparenchymal (Frontotemporal)	3	60%
Total	5	100%

FIGURE 3: DISTRIBUTION OF PATIENTS BASED ON SITES OF INFRACTS



DISCUSSION:

In our study 31.57% of patients were in between 36-45 years. 21.05% of patients were in between 46-55 years, 4.21% of patients were in between 56-65 years and remaining 5.26% of patients were in age group >65 years. Out of 19 patients 16 patients were males and remaining 3 were females. 10 patients who developed CVA were on dialysis for duration 1-6 months accounting for 52.63% of study population, 7 patients were on dialysis for duration of 7-12 months accounting for 36.84% of the study population, remaining 2 patients were on dialysis for >12 months' duration. Out of 19 patients who developed CVA the frequency of dialysis is 1 time per week in 3 patients accounting for 15.78% of study population, 2 times per week in 13 patients accounting for 68.42% of study population and in remaining 3 patients it is 3 times a week accounting for 15.78% of study population. Out of 19 patients who developed CVA hypertension is an associated risk factor in 86.3% of study population, anaemia is present in 54.6% study population, diabetes mellitus in 65.5% study population, dyslipidaemia is present in 18.4% of study population and smoking is an associated risk factor in 18.6% of study population. 14 patients developed CVA due to infraction accounting for 73.68% of the study population and remaining 5 patients developed CVA due to haemorrhage. There is higher incidence of stroke in CKD patients. The incidence of stroke is 5-6 times higher in CKD patients compared to the general population [2]. It is most commonly observed that the death rate due to stroke is also more common in CKD patients compared to general population. CKD is most commonly associated with chronic inflammation. Hypertension is the most common risk factor in CKD patients. Hypertension and chronic inflammation acts as an aggravating factors for increasing the risk of atherosclerosis which resulting in stroke or myocardial infraction. Added to this use of heparin, hypertension, hypoalbuminemia, protein-energy malnutrition, deformed erythrocyte structure, endothelial dysfunction increases the risk of haemorrhagic stroke. Out of 26.32% of study population who developed CVA due to hemorrhage, 3 patients had intraparenchymal haemorrhage and remaining 2 patients developed stroke due to subdural haemorrhage. The increased risk of brain infarcts in CKD patients were due to decreased intravascular blood volume secondary to haemodialysis, autonomic neuropathy, hyperhomocysteinemia. Out of 14 patients who developed CVA due to infarcts, 8 patients had cortical infarcts accounting for 57.14% of the study population and the remaining 6 patients had subcortical infarcts accounting for 42.86% of the study population, this is similar to several studies.

CONCLUSION:

The incidence of stroke in study population is 23.75%. Hypertension is the most common aggravating factor for CVA in CKD patients. CVA due to infraction is more common than haemorrhage in CVD patients. Therefore, clinicians need to do careful evaluation in prompt diagnosis and management of haemorrhagic stroke. Further studies need to be done for clear understanding the effect of stroke in kidney dysfunction.

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