



NEW ONSET OF STROKE IN COVID

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ABSTRACT

Background: The pandemic SARS COVID-19, emerged in Wuhan at the end of 2019, presents with a large variety of clinical manifestations ranging from asymptomatic carrier state to severe respiratory distress. Also newer data suggests that COVID-19 results in a unique, profoundly prothrombotic milieu leading to both arterial and venous thrombosis. Research from Wuhan reported neurological manifestations in 36.4% of 214 COVID-19 patients. Most common reported neurological symptoms include headache and dizziness followed by encephalopathy and delirium. Among the neurological complications noted are cerebrovascular accident, Guillian barre syndrome, acute transverse myelitis and acute encephalitis.

Objective:

- 1) To determine the incidence of stroke in COVID-19
- 2) To assess the incidence of different types of stroke in COVID-19

Methodology:

- 1) **Study design:** Record based descriptive study
- 2) **Study setting:** Department of General Medicine, Government Medical College, Kozhikode
- 3) **Inclusion criteria:** COVID-19 positive patients, both males and females, age between 18-65 years, with new onset stroke admitted in Medical College Hospital between January to July 2021.
- 4) **Exclusion criteria:** Patients with history of old CVA
- 5) **Study population:** 3234 COVID-19 positive patients (category B and C) admitted in MCH between January and July 2021.
- 6) **Study period:** 7months

Method of Collecting Data: From the total 3234 patients admitted during study period, data of patients who have undergone CT brain were obtained from Radiology and their case sheets were referred from medical record library and data was recorded in prepared proforma. **Results:** Among 3234 patients, 122 new onset stroke cases were noted. Maximum incidence of cases were reported in 46-55yrs group and also is more among males. 96(78%) were ischaemic stroke and 26 (22%) were hemorrhagic. Among ischaemic stroke, deep white matter ischaemia is more and among hemorrhagic intra cerebral hemorrhage constituted more. **Conclusion:** Among 3234 patients admitted with COVID-19, 122 (3.7%) cases of new onset stroke was reported. Ischaemic stroke (78%) is more than hemorrhagic (22%). Deep white matter ischaemia constituted majority of ischaemic stroke and intra cerebral hemorrhage was the major form hemorrhagic stroke

KEYWORDS : SARS COVID -19, Ischaemic stroke, Hemorrhagic stroke, Deep white matter ischaemia

INTRODUCTION

The pandemic SARS COVID-19, emerged in Wuhan at the end of 2019, presents with a large variety of clinical manifestations ranging from asymptomatic carrier state to severe respiratory distress. Also newer data suggests that COVID-19 results in a unique, profoundly prothrombotic milieu leading to both arterial and venous thrombosis.

Thrombotic complications in patients with COVID-19 most commonly present as venous thromboembolism. But can also present as ischaemic complications related to thrombosis of extremity, cerebral, coronary and visceral arteries.

Research from Wuhan reported neurological manifestations in 36.4% of 214 COVID-19 patients. Most common reported neurological symptoms include headache and dizziness followed by encephalopathy and delirium. Among the neurological complications noted are cerebrovascular accident, Guillian barre syndrome, acute transverse myelitis and acute encephalitis.

The binding of SARS COVID-19 virus through its spike protein with the ACE 2 receptors in endothelial cells trigger endothelial injury, which will lead to the activation of large number of inflammatory mediators, also activate alternate complementary pathway, all of which activate the coagulation cascade and lead to thrombus formation. Also since the ACE 2 receptor site is occupied by spike protein, there will be large amount of angiotensin 2 available in blood, which will cause vasoconstriction and raised blood pressure even in normotensive individuals, which can contribute to hemorrhagic stroke.

METHODOLOGY

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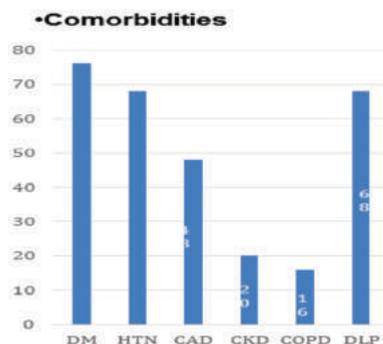
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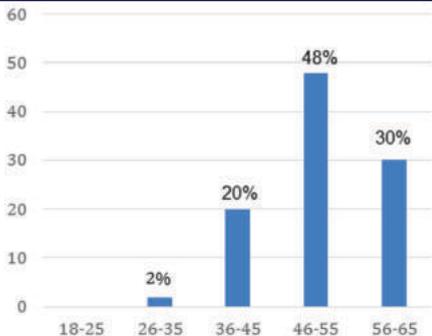
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RESULTS**1. Age group**

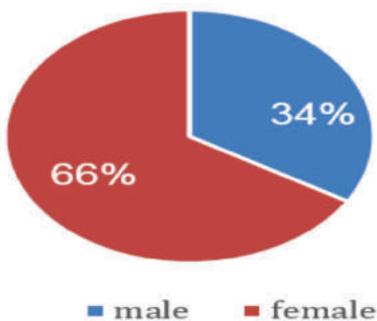


Ischaemic stroke (78%) is more than hemorhagic (22%). Deep white matter ischaemia constituted majority of ischaemic stroke and intra cerebral hemorrhage was the major form hemorrhagic stroke.

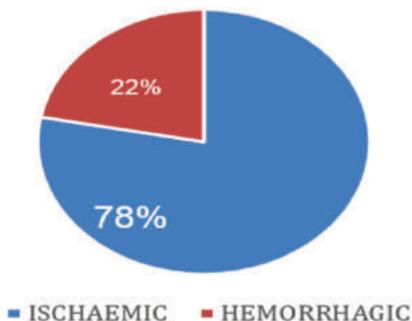
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2. Gender



3 Comorbidities



4. Types of stroke

Types	Percentage
Deep white matter ischaemia	30
Multiple infarct	18
Posterior circulation infarct	8
MCA stem occlusion	16
Thalamic infarct	4
Gangliocapsular infarct	12
Corona radiata	2
ACA occlusion	5

Types	Percentage
Intra cerebral haemorrhage	44
Sub arachnoid haemorrhage	8
Intra ventricular haemorrhage	6
Haemorrhagic transformation	42

- Among 2556 Cat C and 678 Cat B admitted 122(3.7%) had new onset stroke.
- 46-55 age group had maximum incidence .
- Ischaemic stroke (78%) is more than haemorrhagic(22%) of which, deep white matter ischaemia is more
- In our study, incidence of stroke is usually seen 6-9 days after the onset of respiratory symptoms

CONCLUSIONS

Among 3234 patients admitted with COVID-19, 122 (3.7%) cases of new onset stroke was reported.