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Original Research Paper

General Medicine

AN OBSERVATIONAL STUDY TO ASSESS THE SEVERITY AND OUTCOME OF COVID 19 AND NON COVID 19 STROKE PATIENT IN TERTIARY CARE CENTER AND ITS ASSOCIATED HOSPITAL

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ABSTRACT **Background:** Covid-19 might be more likely to cause thrombotic vascular events, including stroke, than other coronavirus & seasonal infectious diseases. The proposed mechanisms for these cerebrovascular events include a hypercoagulable state from systemic inflammation & cytokine storm; postinfectious immune-mediated responses. 40 COVID-19-infected patients with Stroke and 40 Non COVID-19 infected in age group 25-100 years admitted in our 500 bedded covid dedicated hospitals associated with Maharaja Yashwantrao hospital, Indore, were observed for their clinical profile, complications, laboratory parameters, inflammatory markers, radiological parameters and outcome etc. Patients were divided into two study groups i.e. Covid-19 Stroke group and Non Covid-19 Stroke group. Clinical, laboratory and radiological parameters were observed in both groups and found out to be worse in covid-19 stroke group.

KEYWORDS :

INTRODUCTION

COVID-19 is caused by the severe acute respiratory syndrome coronavirus 2 (SARS CoV-2), a type of coronavirus[1]. Millions of individuals were affected worldwide swiftly, forcing the World Health Organization to designate it a pandemic in March 2020. Covid-19 might be more likely to cause thrombotic vascular events, including stroke, than other coronavirus & seasonal infectious diseases. In fact, a 7·6-fold increase in the odds of stroke with COVID-19 compared with influenza was recently reported. The reported incidence of cerebrovascular disease in patients testing positive for SARS-CoV-2 ranges from 1% to 6%, potentially equating to large numbers of individuals as the pandemic progresses in some countries[2].

The proposed mechanisms for these cerebrovascular events include a hypercoagulable state from systemic inflammation & cytokine storm; postinfectious immune-mediated responses & direct viral-induced endothelial dysfunction, potentially leading to angiopathic thrombosis, with viral particles having been isolated from the endothelium of various tissue, including brain tissue.

AIMS AND OBJECTIVES

- To Compare Severity & Outcome Of Stroke In Covid 19 Patient & Non Covid 19 Patients.
- To Study Demographic Profile Of Stroke Patient In Covid19 & Non Covid 19 Groups.
- To Assess The Various Risk Factors Contributing To The Development Of Stroke Among Subjects.
- To Study Relevant Inflammatory Markers In Study Subjects.

MATERIAL AND METHODS:

The present study was an Case Control Study planned and carried out in Department of Medicine, MGM college & MY hospital, Indore from 24th March 2020 to 24 March 2022. This study included 40 consecutive stroke patients with documented and laboratory confirmed COVID-19 disease and another 40 stroke patients with laboratory confirmed COVID-19 Negative status at the time of enrollment who were admitted or availing treatment for COVID-19 in wards of Medicine, ICU, and COVID special wards of MY Hospital.

Methodology:

40 Stroke patients each from COVID-19 Positive and Negative status were observed for their outcomes and severity . These were assessed using various Clinical, Laboratory, Radiological parameters such as NIHSS Scoring, Modified RANKIN Score, CRP, D-DIMER, IL6, CBC, LFT, RFT, PT-INR, MRI BRAIN, CT BRAIN and clinical parameters such as symptomatology, duration, and severity of the illness, and presence of co-morbid status like hypertension, diabetes, coronary artery disease etc. were noted from their medical records.

OBSERVATION AND RESULT:

There were more males (72.5% and 75 %) compared to the females (27.5% and 25%). Maximum patients (97.5% and 100%) underwent MRI Brain and (2.5% and 0%) patients underwent CT Brain for the diagnosis of stroke. 0 (0%) patient in Covid Stroke and 2 patient in Covid control group (5%) had Mild severity NIHSS. 28 (70%) patient in Covid Stroke and 35 patient (87.5%) in Covid control group had Moderate severity NIHSS. 9 (22.5%) patient in Covid Stroke and 3 patient (7.5%) in Covid control group had Moderate to severe severity NIHSS. 3 (7.5%) patient in Covid Stroke and 0 patient (0%) in Covid control group had Severe severity NIHSS.

0(0%) patient in Covid Stroke and 0 patient (0%) in Covid Control had Rankin score 0 . 0 (0%) patient in Covid Stroke and 0 patient (0%) in Covid Control had Rankin score 1. 2 (5%) patient in Covid Stroke and 0 patient (0%) in Covid Control had Rankin score 2 . 6 (15%) patient in Covid Stroke and 11 patient (27.5%) in Covid Control had Rankin score 3 . 25 (62.5%) patient in Covid Stroke and 28 patient (70%) in Covid

Control had Rankin score 4. 7 (17.5%) patient in Covid Stroke and 1 patient (2.5%) in Covid Control had Rankin score 5. 0 (0%) patient in Covid Stroke and 0 patient (0%) in Covid Control had Rankin score 6.

1 (2.5%) patient in Covid Stroke and 1 (2.5%) patient in Covid Control had risk factor Alcohol. 3 (7.5%) patients in Covid Stroke and 2 (5%) patients in Covid Control had risk factor Coronary artery disease. 13 (32.5%) patients in Covid Stroke and 27 (67.5%) patients in Covid Control had risk factor Diabetes. 23 (57.5%) patients in Covid Stroke and 11 (27.5%) patient in Covid Control had risk factor Hypertension. 1(2.5%) patient in Covid Stroke and 0 (0%) patient in Covid Control had risk factor Cerebrovascular accident. 1 (2.5%) patient in Covid Stroke and 1 (2.5%) patient in Covid Control had risk factor Tobacco. 1 (2.5%) patient in Covid Stroke and 2 (5%) patient in Covid Control had risk factor Atrial fibrillation. 0 (0%) patient in Covid Stroke and 0 (0%) patient in Covid Control had risk factor Valvular heart disease.

26 (65%) patients from case group and 32 (80%) patients from control group are Discharged. 14 (35%) patients from case group and 8 (20%) patients from control group are Dead.

- Mean CRP of Covid Stroke group was significantly higher as compared to that of Covid Control group. (CRP : Covid stroke v/ Covid control Group: 63 +-40 v/s 40.18 +-22.047 ; p=0.0025) .
- Mean IL6 of Covid Stroke group was significantly higher as compared to that of Covid Control group. (IL6 : Covid stroke v/ Covid control Group: 702.45 +- 614.9 v/s 319.03 +- 119.7 ; p=0.0002) .
- Mean D-DIMER of Covid Stroke group was significantly higher as compared to that of Covid Control group. (D-DIMER : Covid stroke v/ Covid control Group: 63 +-40 v/s 40.18 +-22.047 ; p=0.0025)
- There was significant association seen between Rankin Score at discharge and the Rankin Score at admission (P=0.03).

CONCLUSIONS

In the current study, we have considered 80 patients with 40 Covid Positive stroke and 40 Covid Negative stroke in age group 25-80 years and considered their clinical, biochemical, inflammatory, radiological, and other required parameters. From this it could be concluded that Covid Positive status was associated with Severe Covid infection, Moderate to High NIHSS

scale strokes, Highly raised Inflammatory markers and Poor modified Rankin score on discharge and follow up. The severity of COVID-19 in Stroke could be due to the dysfunctional immune system, with increased susceptibility to viral infection and an exaggerated immune response like cytokine storm. Given the associated hypercoagulability, clinical-treatment algorithms for patients hospitalized with COVID-19 have shifted toward widespread use of full- or prophylactic-dose anticoagulation to prevent thromboembolic complications, though the benefits of this approach remain unproven because it is based solely on observational data.

REFERENCES:

1) www.mdpi.com
2) www.ncbi.nlm.nih.gov
3) COVID-19 Severity and Stroke: Correlation of Imaging and Laboratory Markers
4) J.M. Katz, R.B. Libman, J.J. Wang, C.G. Filippi, P. Sanelli, A. Zlochower, M. Page | 63
5) Gribko, S.V. Pacia, R.I. Kuzniecky, S. Najjar, S. Azha American Journal of Neuroradiology Feb 2021, 42 (2) 257-261; DOI: 10.3174/ajnr.A6920