IS THERE AN ASSOCIATION BETWEEN COVID-19 AND STROKES IN THE AGE GROUP 50 TO 85 YEARS IN ANÁPOLIS-GO?

Isabella Ribeiro Ferreira[1]
Iasmim Linhares da Silva[2]
Wesley Gomes da Silva[3]
Universidade Evangélica de Goiás – UniEVANGÉLICA[123]

ABSTRACT

Infection by Sars-Cov-2 occurs through inhalation or direct contact with contaminated droplets, with high infection potential that generated lethality levels never seen before in such a short period of time. Although it has symptoms similar to Influenza, there is a greater potential for complications such as encephalitis, severe hypoxemia, encephalopathies, and neuronal degeneration, which are common in cases of Stroke (ischemic or hemorrhagic). From this perspective, studies show that the Sars-Cov-2 virus has neuroinvasive properties and that the probability of death from stroke after Sars-Cov-2 infection increases up to five times compared to non-infected individuals. Thus, this research aims to describe the relationship between stroke and COVID-19 infection, considering the age group of 50 to 85 years in Anápolis, and to support health care services. This is a cross-sectional, descriptive, and quantitative study. A total of 200 medical records were collected between 2020 and 2021, of patients aged 50 to 85 years with positive PCR and symptoms of COVID-19, both at outpatient and inpatient levels at the Evangelical Hospital of Goiás. It was observed that out of 200 patients, 120 had previous comorbidities; patients with a history of prior stroke developed more severe complications; the main complications were pulmonary; and at the chosen hospital, there were no confirmed cases of post-COVID stroke in the studied age group.

Keywords: “Stroke”; “COVID-19”; “Pandemic”.

INTRODUCTION

In 2020, the pandemic caused by Sars-Cov-2 (COVID-19) reached extreme lethality levels never before seen in such a short period. To this day, the emergence of this viral agent with lethal potential affects the daily lives of individuals worldwide (MEYER C. & VELAVAN T., 2020). Currently, it is proven that Sars-Cov-2 is transmitted by inhalation or direct contact with infected droplets, and its rapid spread led the World Health Organization (WHO) to declare it a pandemic (ESTEVÃO, 2020).

At first, several clinical manifestations accompany the infection, differing from Influenza by having greater potential for complications such as encephalitis, severe hypoxemia, encephalopathies, and even neuronal degeneration, conditions that in some cases are associated with Stroke (DIAS I. et al., 2022).

Stroke, also known as cerebrovascular accident, is a neurological syndrome resulting from changes in cerebral blood supply. It can be classified as ischemic when blood vessel failure occurs, or hemorrhagic when blood leaks into or around the structures of the nervous system. The main symptoms are weakness in the face, lower and upper limbs, mental confusion, changes in speech, vision, balance, motor coordination, dizziness or difficulty walking, and headache with or without apparent cause (DIAS et al., 2022). However, studies on this comorbidity are extremely complex, as there is extensive research regarding its causes and consequences (FALCÃO I. et al., 2004).

From this perspective, studies show that the Sars-Cov-2 virus has neuroinvasive properties, with the possibility of moving from the respiratory system to the central nervous system (ABREU F., ROSA R. & NUNES R., 2022). Furthermore, recent studies have shown that the probability of death from stroke after Sars-Cov-2 infection increases up to five times compared to non-infected individuals who suffered a stroke. Therefore, based on this premise, this research aims to describe the relationship between Stroke and COVID-19 infection, considering the age group of 50 to 85 years in the municipality of Anápolis, and to support health care services in managing these patients

METHODOLOGY

This study is cross-sectional, descriptive, and quantitative. It seeks to understand and verify whether infection by Sars-Cov-2 is related to the onset of stroke in patients who had contact with the virus.

This research was submitted to the Ethics and Research Committee of the Evangelical University of Goiás – UniEVANGÉLICA, approval number: 6.769.756. To begin the study, authorization was obtained from the institution for data collection, through the Authorization Term for Use and Handling of Data and the Informed Consent Form of the participating institution. Data collection was carried out at the Evangelical Hospital of Goiás, after authorization and clearance from the Ethics Committee.

Based on this authorization, data were collected from 200 digitalized medical records from January 2020 to December 2021, ensuring complete confidentiality of patient identity. The analysis was performed using this dataset, and the sample was obtained by convenience, selecting the records most relevant to the research.

For this study, the data were used to conduct a demographic analysis related to prevalence in the age group of 50 to 85 years in the municipality of Anápolis, specifically at the Evangelical Hospital of Goiás.

Inclusion criteria: patients treated at the institution at both outpatient and inpatient levels, between January 2020 and December 2021, within the chosen age range, infected with Sars-Cov-2 and showing symptoms of infection. Exclusion criteria: patients with symptoms similar to COVID-19 but without PCR confirmation.

In addition, this research contributes to the field of scientific research and health professionals, as it allows health units to establish therapeutic plans based on the knowledge of this correlation between stroke and Sars-Cov-2 infection, benefiting future patients with the same condition. After data collection, the information was analyzed through statistical methods and recent literature on the topic. The results are presented in Table 1 for better understanding.

RESULTS

Table 1. Results of the Analyzed Medical Records

	Número de pacientes	**Complicações Pós COVID**	**Internações**	**AVC confirmado Pós COVID**	**Óbito**
Feminino	**99**	**59**	**52**	**0**	**6**
Masculino	**101**	**61**	**57**	**0**	**11**
Total:	**200**	**120**	**109**	**0**	**17**

Source: Author.

Regarding the analysis of medical records, it was observed that of the 120 patients who presented complications, 58 already had previous comorbidities such as systemic arterial hypertension, diabetes, obesity, hypothyroidism, chronic kidney disease, and heart disease.

Furthermore, patients with a prior history of ischemic or hemorrhagic stroke showed a more severe clinical condition than those without such history, totaling 11 patients. Among these: 3 died immediately after infection by Sars-Cov-2, 1 died one year later from a new stroke, 2 were discharged after severe pneumonia and pleural

effusion, 1 was discharged after pulmonary embolism, 2 were transferred to specialized units in Anápolis, and only 2 were discharged without major complications.

Other complications such as tachycardia, severe lymphopenia, hyponatremia, urinary tract infection, edema, hypotension, sinus bradycardia, generalized anxiety disorder, and panic syndrome were also observed, albeit in smaller numbers, both at outpatient and inpatient levels.

As for stroke, in only 3 patients was cranial CT performed, which showed hypoattenuation of white matter in both hemispheres with nonspecific aspects in 2 of them. However, no further information was found in the records, as one of these patients was discharged and the other died before further investigations.

Finally, regarding the records, some pending information was observed in a few cases, such as: previous diseases, health history, discharge dates consistent with the system or patient evasion, transfer location, and clinical outcome.

CONCLUSION

It is concluded that, although the literature defines a correlation between Stroke and COVID-19, in the study conducted, no confirmed cases were found specifically at the Hospital Evangélico de Goiás in Anápolis.

Thus, future research is extremely necessary to correlate the two diseases and provide greater depth for health professionals and the academic field.

ACKNOWLEDGMENTS

We thank Universidade Evangélica de Goiás for support in conducting the research, the National Council for Scientific and Technological Development (CNPq), and the Hospital Evangélico de Goiás for providing the data.

REFERENCES

ABREU, FBA., Rosa RS, NUNES. Principais comorbidades ou fatores que aumentam o risco de AVC em pacientes com COVID-19. **Revisa,** v.11, n. 4, p. 458-468, 2022.

DIAS, IS, *et al.* Acidente Vascular Encefálico e a contaminação pelo COVID-19. **Research, society and development,** v. 11, n. 8, 2022.

ESTEVÃO, Amélia. COVID-19. **Acta Radiológica Portuguesa**, v. 32, n. 1, p. 5-6, 2020.

FALCÃO, IV, *et al.* Acidente Vascular Cerebral Precoce: implicações para adultos em idade produtiva atendidos pelo Sistema Único de Saúde. **Revista Brasileira de Saúde Materno-Infantil,** v. 4, n. 1, p. 95-102, 2004.

KATSANOS, A.H., *et a*l. The Impact of SARS-CoV-2 on Stroke Epidemiology and Care: A Meta-Analysis. **American Neurological Association**, v. 89, n. 2, p. 380-388, 2021.

MEYER, CG., VELAVAN, TP. The COVID-19 epidemic. **Tropical Medicine and International Health,** v. 25, n. 3, p. 278-280, 2020.

SIOW, I., *et al.* Encephalitis as a neurological complication of COVID-19: A systematic review and meta-analysis of incidence, outcomes, and redictors. **European Academy of Neurology**, v. 28, p. 3491-3502, 2021.