

Neurological Manifestation that Associated with Covid-19 infected Person in Al Muthanna Province

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Abstract

Overview: Coronavirus Disease 2019 (COVID-19), a worldwide pandemic caused by the SARS-CoV-2 infection, has been linked to both acute and chronic nervous system diseases. People with COVID-19 can have a wide range of acute neurological disorders, including anosmia, CVA, seizures, and Guillain-Barre syndrome. Although they are commonly mentioned, chronic neurological sequelae, pain, dysautonomia, exercise intolerance, neurocognitive and mental dysfunctions are less well understood.

Objectives: To evaluate neurological manifestation in covid -19 patients attending AL-Hussein teaching hospital

Methodology: This study was carried out at the Al-Hussain Teaching Hospital's isolation unit using a descriptive design between (15th of April 2021, to the 5th of May 2022). The 134 patients who had the corona virus infection were chosen using a non-probability (purposive) sampling method. The researcher utilized a knowledge form with 20 questions on it to assess the neurological impact on coronavirus patients. By distributing the questionnaire to (18) experts, its validity was confirmed. The test-retest strategy was used to evaluate the questionnaire's reliability.

Results: Study result was to determine the clinical manifestation of the neurological system as impact of covid 19 infected patients. The results show that most of study sample that infected with corona virus suffering from severe headache, insomnia and vertigo later as a side effect of covid19 infection.

Conclusion: Covid-19 affect nervous system like respiratory system and left patients suffer from neurological manifestation after complete recovery like anosmia or parosmia or mental disturbance.

Keywords: Coronavirus • Neurological manifestation

Introduction

The 2019 coronavirus infection (COVID19) was named a pandemic by the World Health Organization (WHO) on 11 march 2020. The pandemic epicenter migrated rapidly to Europe and the United States over the course of a few short weeks. Since the middle of March 2020, Southeast Asia has also seen a rise in the number of sick persons; it is unknown if the course of this pandemic will change at this point. While the hunt for an effective vaccine continues, gathering as much information as possible regarding the mechanics of transmission and clinical manifestations is one of the most crucial weapons in the fight against a pandemic of this magnitude [1].

Since new data are surfacing and the pattern of clinical characteristics of COVID-19 is steadily expanding and deepening, neurologists must continue to navigate through this unsettling area of uncertainty. Neurologists, on the other hand, are accustomed to uncertainty but are also committed to thoughtfully approaching problems one at a time. In fact, as a direct insult or a side effect of infection, the brain has historically been the target organ

in a number of infectious diseases and critical disorders. The peripheral nervous system (PNS), in addition to the Central Nervous System (CNS), is particularly susceptible to immune-mediated illnesses brought on by infections. Prolonged immobility during urgent hospitalization can also have a detrimental effect on nerves and muscles [2,3].

During the beginning of the pandemic, recurrent hyposmia and hypogeusia also caught the attention of medical professionals in addition to non-specific neurological symptoms as headache and dizziness. Increases in frequency and range of neurological findings have been observed in recent investigations that specifically examined neurological involvement. The virus's direct effects, para- or post-infectious immune-related disorders, and COVID-19's systematic effects can all cause symptoms in the nervous systems.

In patients' with COVID19, pre-existing neurological comorbidities may make neurological signs more common and more severe. However, the data that are currently available are insufficient to fully illustrate this association. However, some research has shown that neurological issues that arise during Covid19 worsen the patient's prognosis and raise mortality and morbidity [4].

Research Methodology

A descriptive design of the study has been used to evaluate the effect of the infected with corona virus on neurological symptoms in Al-Hussain Teaching Hospitals from the 15th of April 2021, to the 5th of May 2022.

The researcher provide a comprehensive explain of the study, including its goals and method of data collection, to the Health Directorate in order to obtain governmental approval before conducting the study. after receiving

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the required approvals to do so from the College's Council of the Medicine / University of Al-Muthanna. Finally, in order to ensure the management and staff's approval and cooperation, consent was provided to Al-Hussain Teaching Hospital.

All patients gave their consent, and no information about the patients' names was gathered. The researcher also clarifies the study's objectives to all patients. As a result, they were fully briefed of their task. All participants were informed by the researcher that the questionnaire's results would only be used for research. Also, let them know that everyone who participates can decline participation.

The setting of the study: This study was carried out in the private clinic and AL-Hussain Teaching Hospital in Al-Muthanna City. 134 patients were selected as a purposeful sample. 10 patients were not included in the study because it was a pilot trial.

Table 1: Neurological manifestation

Neurological manifestation	Frequency	Percent(%)
Anosmia	24	17.9
Back pain	14	10.4
bells 'palsy	4	3
Fit	10	7.5
headache	26	19.4
hiccup	6	4.5
joint	6	4.5
myalgia	4	3
stroke	14	10.4
syncope	2	1.5
vertigo	24	17.9
Total	134	100

Table 2: Neurological manifestation relation to patient's age.

Neurological manifestation	Age group						Total
	15-24 years	25-34 years	35-44 years	45-54 years	55-65 years	65 years and above	
Anosmia	2(14.3%)	8(40%)	10(27%)	4(26.7%)	0(0.0%)	0(0.0%)	24(17.9%)
Backpain	0(0.0%)	0(0.0%)	6(16.2%)	2(13.3%)	2(8.7%)	4(16%)	14(10.4%)
Bell's palsy	4(28.6%)	0(0.0%)	0(0.0%)	0(0.0%)	0(0.0%)	0(0.0%)	4(3.0%)
Fit	0(0.0%)	2(10%)	2(5.4%)	0(0.0%)	0(0.0%)	6(24%)	10(7.5%)
Headache	6(42.9%)	2(10%)	10(27%)	2(13.3%)	4(17.4%)	2(8%)	26(19.4%)
Hiccup	2(14.3%)	0(0.0%)	2(5.4%)	0(0.0%)	2(8.7%)	0(0.0%)	6(4.5%)
Joint pain	0(0.0%)	0(0.0%)	0(0.0%)	2(13.3%)	2(8.7%)	2(8%)	6(4.5%)
Myalgia	0(0.0%)	0(0.0%)	1(2.7%)	1(6.7%)	2(8.7%)	0(0.0%)	4(3%)
Stroke	0(0.0%)	0(0.0%)	0(0.0%)	0(0.0%)	5(21.7%)	9(36%)	14(10.4%)
Syncope	0(0.0%)	0(0.0%)	0(0.0%)	2(13.3%)	0(0.0%)	0(0.0%)	2(1.5%)
Vertigo	0(0.0%)	8(40%)	6(16.2%)	2(13.3%)	6(26.1%)	2(8%)	24(17.9%)
Total	14(100%)	20(100%)	37(100%)	15(100%)	23(100%)	25(100%)	134(100%)

*It is highly significant (p-value =0.001, Fisher exact test=145.027

Table 3: Neurological manifestation relation to patient's gender.

Neurological manifestation	Gender		Total
	Female	Male	
Anosmia	8	16	24
	0.133	0.216	0.179
Back pain	8	6	14
	0.133	0.081	0.104
Bell's palsy	2	2	4
	0.033	0.027	0.03
Fit	6	4	10
	0.1	0.054	0.075
Headache	16	10	26
	0.267	0.135	0.194
Hiccup	2	4	6
	0.033	0.054	0.045
joint pain	4	2	6
	0.067	0.027	0.045
Myalgia	0	4	4
	0	0.054	0.03
Stroke	4	10	14
	0.067	0.135	0.104
Syncope	0	2	2
	0	0.027	0.015
Vertigo	10	14	24
	0.167	0.189	0.179
Total	60	74	134
	1	1	1

**it is not significant relationship ((p-value=0.173), Chi, square test=13.999

A panel of (17) experts evaluated the validity of the questionnaire instrument for the study data. Each discipline's experts have more than 5 years of experience. The questionnaire's items were simple and sufficient for the study, according to the experts' examination. Following the advice of the experts, minor changes were made to a few sections of the questionnaire and the program.

To assess the reliability of the study questionnaire, a pilot study was conducted on (10 chosen randomly patients). The participants in the pilot study are compliant with the same criteria as the study's initial sample. The pilot study was conducted between March 10 and April 10, 2022, at the Al-Hussain Teaching Hospital.

Using a test-and-retest methodology, the reliability of the knowledge questionnaire was assessed by evaluating (five) corona virus-infected patients at Al-Hussain Teaching Hospital. For the knowledge questionnaire reliability, there was a two-week gap between the initial test and the follow-up examination. According to the reliability of the questionnaire, correlation is (0.89). The results of the study were examined using descriptive and inferential statistics in the Statistical Package of Social Sciences (SPSS) version 26.

Result and Discussion

Table 1, findings from the current study examined the statistics of clinical neurological system manifestations as a result of covid 19 infection patients. Likert scale questions items were used to identify the frequency of neurological symptoms. The results show that most of study sample that infected with corona virus suffering from severe headache, insomnia and vertigo.

These findings agree with those of Ermis et al. that the majority of patients infected with corona virus suffering later from insomnia and headache at (p. value = 0.003). Furthermore, it agreed, which shows that about third of study sample later suffering from headache and vertigo at percentage (42.0%) these result also agree with which reveal that most of patients infected with corona virus suffering later from insomnia and headache [5-8]. Table 2, demonstrates the study's strong correlation between patient age and a rise in neurological symptoms. The data also reveals that category (45-44) years was the age range where the bulk of patients with higher neurological symptoms appearance.

There are statistically not significant differences between the gender and neurological symptoms after infected with corona virus and most of the study sample was male as show in Table 3. These findings corroborated those of the Pilotto et al., study. who revealed that most age that suffering from severe neurological symptoms was more than 40 years old. Also, reported mostly highly significant relationship with age at a p.value 0.006 and a non-significant with gender at P. value 0.6. also, this study match the Edith et al., study that report most study was female and no significant relationship between neurological manifestations and gender with p- value 0.51 [9].

These results agree with those of which reveals that majority of

study sample was male and with age more than 45 years old. In addition, these study show that there was highly significant relationship between neurological symptoms appearance with age and gender at p-value 0.00.

Conclusion

We concluded from this study that Covid-19 affect nervous system like respiratory system and left patients suffer from neurological manifestation after complete recovery like anosmia or parosmia or mental disturbance.

Recommendations

Early screening for neurological signs or symptoms in every infected patient with covid-19 like physical or mental changes when evaluated by physician.

Informed neurologist about neurological assessment for Covid-19 patients

Start treatment for neurological complications as early as possible like stroke, Gullian barre syndrome, epilepsy, peripheral neuropathy and neuritis.

References

1. Lahiri, D, & Alfredo A. "COVID-19 pandemic: a neurological perspective." *Cureus* 12.4 (2020).
2. Tsvigoulis, G, et al. "<? covid19?> Neurological manifestations and implications of COVID-19 pandemic." *Ther adv neuro. disord.* 13 (2020): 1756286420932036.
3. Balcom, E.F., et.al "Acute and chronic neurological disorders in COVID-19: potential mechanisms of disease." *Brain* 144.12 (2021): 3576-3588.
4. Frontera, J. A., et al. "A prospective study of neurologic disorders in hospitalized patients with COVID-19 in New York City." *Neurology* 96.4 (2021): e575-e586.
5. Yuksel, H, et al. "Neurological manifestations of COVID-19 in confirmed and probable cases: a descriptive study from a large tertiary care center." *J Clin Neurosci.* 86 (2021): 97-102.
6. Xu, E, Yan X, et.al. "Long-term neurologic outcomes of COVID-19." *Nat med.* 28.11 (2022): 2406-2415.
7. Ermis, U, et al. "Neurological symptoms in COVID-19: a cross-sectional monocentric study of hospitalized patients." *Neurol res pract.* 3 (2021): 1-12.
8. Pilotto, A, et al. "Long-term neurological manifestations of COVID-19: prevalence and predictive factors." *Neurol Sci.* 42 (2021): 4903-4907.
9. Graham, E. L., et al. "Persistent neurologic symptoms and cognitive dysfunction in non-hospitalized Covid-19 "long haulers"." *Ann clin transl neurol.* 8.5 (2021): 1073-1085.

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