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Case Report

Anosmia and Covid-19 in Yogyakarta, Indonesia: a case series

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ARTICLE INFO

Submitted : 20st February 2021

Accepted : 04st April 2021

Published : 25st July 2021

Keywords:

anosmia, smell disorder, covid-19

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ABSTRACT

Covid-19 (coronavirus disease 2019) had spread to the whole world. This kind of virus attacks the human respiratory system, and it caused death. In other words, there were many symptoms of Covid-19, which attacks the respiratory system. One of the symptoms was anosmia or smell disorder. This research might provide information about the anosmia in Covid-19 patients. This study aimed to investigate and present a series about anosmia and Covid-19 in Yogyakarta on June 2020. Three cases from three patients of RT-PCR-confirmed SARS-CoV-2-infected patients diagnosed with smell disorder were presented, starting from the symptom until the patients were getting treatments. This research also explained anosmia as one of the symptoms of Covid-19. Anosmia or losing olfactory function or smell disorder which could distract people's healthy. Then, in this situation, it could be one of the symptoms of Covid-19.



INTRODUCTION

In the world of health this year, severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) or presently known as coronavirus disease 2019 (Covid-19) is a major issue. SARS-CoV-2 is included in the family of coronaviruses such as SARS-CoV and Middle East Respiratory Syndrome (MERS) –CoV, (Lai, et. al., 2020; Kang, et. al., 2020). In December 2019, Covid-19 was first reported in Wuhan, China, (Zhu, et. al., 2020; Wu, et. al., 2020). Covid-19 then spread rapidly across the countries, including Indonesia, (Azwar, et. al., 2020). The World Health Organization (WHO) declared a pandemic for the first time on On 11 March 2020, (Cucinotta & Vanelli, 2020).

Covid-19 can be caused by symptoms of smell disorders or anosmia, based on previous research. According to Gane, et. al., (2020), there is an increased presentation of asymptomatic anosmia in the UK population during the early phases of the pandemic. In several other countries, the same is true. German virologist Hendrick Streeck reported a loss of sense of smell and taste in more than two-thirds of 100 people who have interviewed mild symptoms of Covid-19 (Brodwin, 2020). A bulletin detailing the vital link between Covid-19 and anosmia or hyposmia was published by the Ear, Nose, and Throat Society of the UK and the British Rhinological Society on 20 March 2020. The American Academy of Otolaryngology also states that the symptoms used for screening for Covid-19 are added to anosmia, hyposmia, and dysgeusia (in the absence of other respiratory diseases), (Brann, et. al., 2020). Although some of anosmia were one of symptom from Covid-19, Indonesia's anosmia cases, especially in Yogyakarta, still have not yet reported as many as other countries.

Coronavirus-19-related anosmia and hyposmia is a newly emerging concept in the medical literature (Mubaraki, et. al., 2021 (p. 1). As anosmia could be the symptom of Covid-19, physicians should be more aware of handling the patients and their own healthy (Hariyanto, et. al., 2020). Mutiawati, et. al., (2021) supported that anosmia could be the earliest symptom of Covid-19. Therefore, people include physicians, should be more aware of this case.

This case series reported three patients who had been diagnosed with Covid-19 used RT-PCR test. Then, this research focused on anosmia as their symptom, and the patients' treatment was nasal irrigation. In this case series, the researchers aimed to identify anosmia's clinical presentation in Covid-19 patients in Yogyakarta, Indonesia.

CASE REPORT

The case series had been conducted with three anosmia patients during June 2020. The patients did history taking and physical examination and have been asked to fill the form for this research.

The first case came from a 33 years old female, a general practitioner, who presented with smells disorders. There was a history of flu-like symptoms in the last 1 week. The patient had a fever, myalgia, fatigue, and dry cough. The patient had no nasal obstruction symptoms, facial pain, and no history of respiratory system diseases such as rhinosinusitis, hypertrophy of chonca, or brain disease. The vital sign within normal limits. Anterior rhinoscope examination showed inferior and media chonca within normal limit, and there were no discharge, nasal septum within normal limit. The patient was diagnosed as Covid-19 based on positive result of real-time reverse-transcriptase polymerase-chain-reaction (RT-PCR) assay for nasopharyngeal and oropharyngeal swab specimens five days after the symptoms. The patient was given the



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Covid-19 treatment and regular nasal irrigation with saline nasal irrigation. The smells disorder was getting better within 5 days.

The second case came from a male 20 years old, student, presented to ENT clinics with loss of his sense of smell for 3 days. The patient did not have other symptoms like fever, nasal blockage, facial pain, or runny nose. There was no history of respiratory system disease and brain disease before the test of Covid-19. The general vital sign and the nasal examination within normal limit, and there was no hypertrophy conchae and discharge on the nasal cavity. The patient was suggested to perform a real-time reverse-transcriptase polymerase-chain-reaction (RT-PCR) assay for Covid-19 from nasopharyngeal and oropharyngeal swab, and the result was positive. The patient suggested performing nasal irrigation with saline nasal irrigation and intranasal steroid. Then, smell disorder was getting better within 1 week.

The third case came from a male 28 years old, a doctor, who presented with smell disorder. There was a history of flu-like symptoms in the last 3 days. The patient had a fever, myalgia, fatigue, dry cough, diarrhea, nausea, and vomitus. In this patient, there was no history of the nasal disease, sinus paranasal, and brain disease. The inferior and medial conchae were within normal limit, septum nasi within normal limit, and no discharge in anterior rhinoscopy examination. The patient was diagnosed as Covid-19 based on a real-time reverse-transcriptase polymerase-chain-reaction (RT-PCR) assay for nasopharyngeal and oropharyngeal swab specimens 2 days after the symptoms. The patient had smell disorder 3 days after the positive result of the RT-PCR assay. Then, he was given the Covid-19 treatment and regular nasal saline spray. The smells disorder is getting better within 4 days.

DISCUSSION

Anosmia is one of the smell disorders that may attack human's immune and cause several impacts on the respiration organ (Carrillo-Larco & Altez-Fernandez, 2020). Gane, et. al., (2020) stated that its other name is olfactory dysfunction, making people have difficulties smelling. This problem is a serious problem for every human being. The upper respiration consists of nose, pharynx, and larynx. They have the essential roles in keeping human's healthy by did respiration well (Eliezer, at. al., 2020). If they cannot do it well, people can get sick such as smell and taste disorders.

According to Hopkins, et. al., (2020), anosmia can be defined as well-reported coronas virus symptoms. The study that has been conducted shows that otolaryngologists reported anosmia as one of the symptoms of Covid-19 and this is happen almost in all cases (Lechien, et. al., 2020). It has been supported with a statement that stated that anosmia and hyposmia often occur unnoticed in Covid-19 patients (Hornuss, et. al., 2020). The other founding showed that anosmia may be one of the diseases that occurred when a person got Covid-19. The previous study reported that the incidence is not known and the pathogenesis of the disease behind this manifestation is still not fully understood, (AlKetbi, et. al., 2020; Marinosci, et. al., 2020).

Meanwhile, the pathophysiology of those symptoms had not been accepted. Any kind of animals have proven the high levels of angiotensin-converting enzyme (ACE2) proteins expression by nasal and olfactory support cells, which the SARS-CoV-2 uses to infect the cells. Many people believe that the symptoms might be part of the neurological manifestations of Covid-19, with evidence suggesting propagation of the virus through the



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olfactory path (Dev, et. al, 2021). Therefore, without knowing the exact cause and effect of Covid-19, people should be aware of their health and check for their respiration healthy to measure that they do not lose their smell function.

The result showed that the first, second, and third patients had differences when they got into Covid-19. For the differences, the first patient had a fever, myalgia, fatigue, runny nose, and dry cough and smell disorder, while the second patient had smell disorder without other symptoms. Besides, the third patient had smell disorder, flu, fever, myalgia, fatigue, dry cough, diarrhea, nausea, and vomitus. Each patient has their symptom, but in general, they got smell disorder before they were diagnosed as a positive Covid-19. One way to detect a patient is with a sniffing test because it relates with the olfactory function, and by sniffing test, people will know either they were detected of having anosmia. In the three cases, anosmia only has been counted subjectively based on the patients' symptom. That were caused by the unavailability of facilities to did smelling test such as sniffing test. In the other case that happened, anosmia usually occurred before the patient did test to detect Covid-19, the patient usually felt the anosmia with other diseases, such as fever, asthma, dysgeusia, myalgia, sore throat, fatigue, diarrhea, and other diseases, (Klopfenstein, et. al., 2020). The three patients had the same test to diagnose the Covid-19, by using a real-time reverse-transcriptase polymerase-chain-reaction (RT-PCR) assay from nasopharyngeal and oropharyngeal swab. The next differences were the treatment. Each patient got a different kind of nasal irrigation. The first patient got treatment and regular nasal irrigation with saline nasal irrigation. The second patient got nasal irrigation with saline nasal irrigation and intranasal steroid, and the third patient with treatment and regular nasal saline spray. The last result of the differences on the

three patients above was the duration of their recovery. It was found that the first patient felt better for their smell disorder in 5 days, while and the second patient assumed in 1 week, the third patient in 4 days. The different symptoms that had been recovered by different treatments cause different durations on the recovery time, but this is still debatable because there is no exact finding that showed certain treatment has certain results for the patient.

The recommendation in doing nasal irrigation as the additional treatment for people to avoid or even to decrease the risk of Covid-19 because nasal irrigation can remove antigens, inflammatory mediators, and microorganisms such as bacteria and viruses, (Casale, et. al., 2020). The other treatment for reduces the risk of Covid-19 are saline nasal irrigation (SNI), nasal spray, antimicrobial mouthwashes (gargling), and stuff (Casale, et. al., 2020; Burton, et. al., 2020). According to the previous research, this kind of treatment can be used, but it did not recommend as the main treatment in anosmia recovery, especially in Covid-19. *Perhimpunan Dokter Spesialis Telinga Hidung Tenggorok Bedah Kepala Leher (PERHATI-KL)* in Management Guidelines in the Field THT-KL during Covid-19 pandemic book stated in the basic principle that suit with the management of cases of anosmia caused by other viral infections, namely a combination of nasal washing using 0.9% NaCl solution, intranasal corticosteroids, topical decongestants, and zinc preparations, (Hediyanti, et al., 2020). Rhinological Society explained that certain oral medicine and nasal steroids could not be given to the patient as one of its treatments. Therefore, if there were patients with sudden anosmia, it was better to do test for Covid-19 than do treatment first because it could be the potential individuals with Covid-19 (Krajewska, et al., 2020). The limitation of the study was the patients did not do more check-ups to know the function of the olfactory such as used sniffing tests.



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CONCLUSION

Anosmia or losing olfactory function or smell disorder can distract people's healthy and in this situation, it may be one symptom of Covid-19. Besides, there is still no exact proof that it could be the only symptom that measures Covid-19. One and another patient has a different symptom; even some people are positive Covid-19 without symptom. Some Covid-19 patients do not get anosmia but get other symptoms such as fever, cough, flu, runny nose, and etc. This case series may help people get information about anosmia related to Covid-19 cases that happened and may be the information for the reader and the health worker to be more aware of getting at patient recovery.

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