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Olfactory Disturbances as a Manifestation of Corona Virus

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ABSTRACT

Corona Virus is a contagious infectious disease caused by the SARS-CoV-2 Virus. Who reported Approximately 3,349 786 cases of Covid-19 Worldwide. Clinical manifestations of this disease are quite diverse depending on the patient's immune condition and other comorbid diseases. Among the manifestations that often arise are fever, cough, acute respiratory disorders and olfactory dysfunction, namely anosmia, hyposmia and dysgeusia. prevention of transmission of Covid -19, namely by wearing a mask, washing hands frequently, maintaining distance in crowds and carrying out vaccinations

1. INTRODUCTION

Coronavirus Disease 2019 (COVID-19) occurred in Wuhan, Hubei Province, China in December 2019 and spread rapidly throughout China to the rest of the world (Li, et., all 2020). On 12 February 2020, WHO named the disease caused by the novel coronavirus as COVID-19. Clinical evidence has shown that severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) can be passed from person to person . In recent times, the number of cases of COVID-19 has skyrocketed around the world. As of 3 May 2020, WHO reported that 3,349,786 people had been diagnosed with COVID-19 worldwide, with 238,628 deaths, including 214 countries and territories (Meng, et.,all 2020).

In COVID-19 patients, the main manifestations are fever, cough and are characterized by lymphocytopenia and ground-glass opacity changes on chest CT scans (Guan, et. , all 2020). In addition, some patients also present with symptoms of upper respiratory disorders such as pharyngodynia, sore throat, nasal congestion, rhinorrhea and changes in smell. Olfactory dysfunction, including anosmia, hyposmia and dysgeusia are symptoms that can occur in COVID-19 patients.Anosmia can occur alone or can be accompanied by other symptoms of COVID-19, such as a dry cough. Anosmia and dysgeusia are often comorbid in COVID-19 patients.However, the pathogenic mechanism of olfactory dysfunction and its clinical characteristics in patients with COVID-19 are still unclear. (Meng, et. ,all 2020; Lozada, et.,all 2020). Anosmia is the main sign of SARS-CoV-2 infection. Patients with COVID-19 may experience sudden anosmia without other symptoms. Before the onset of anosmia, other mild symptoms such as a dry cough may also appear (Eliezer, et. , all 2020). In addition, the onset of hyposmia during the Covid-19 outbreak should be regarded as a warning sign of infection which requires diagnostic tests for Covid-19 and detection and maintenance of contact with other people (Marchese, et., all 2020) .

2. METHODS

The World Health Organization (WHO) added anosmia, hyposmia, and dysgeusia to the symptoms caused by COVID-19.These symptoms can appear between 2-14 days after exposure to the COVID-19 virus.There is evidence from various countries around the world, including the United States, that these symptoms appear significantly in patients who have contracted COVID-19. Even anosmia in particular appears in patients who have tested positive for the COVID-19 virus through a series of tests but show no other symptoms of this COVID-19. Therefore, symptoms of olfactory disturbances such as anosmia and hyposmia as well as taste disturbances, namely dysgeusia should be added to the patient screening list to detect this COVID-19 case. In addition, for people who experience anosmia, hyposmia, and dysgeusia without other respiratory

diseases such as allergic rhinitis or acute or chronic rhinosinusitis, it is recommended that they be examined for the possibility of being infected with the COVID-19 virus (American Academy of Otolaryngology-Head and Neck) Surgery, 2020).

Anosmia is the inability to taste or smell.Meanwhile, hispomia is a decrease in the ability of the sense of smell to detect odors.This hyposmic condition is actually not very common. There are many causes of anosmia or hyposmia, one of which is an inflammatory process that causes nasal congestion. Anosmia can be permanent or temporary (Li, X. and Lui, F., 2020; University of Texas, 2020).Dysgeusia or what can be called pargeusia is an unpleasant or distorted perception of the taste of food. Usually, patients with dysgeusia will describe the taste of food with unusual tastes, such as a disgusting or metallic taste, or they can feel the taste of ice cream, which was originally sweet, can turn salty, bitter, or something else (Maheswara, T., et al. al., 2014; Su, N., et al., 2015).

3. RESULT AND DISCUSSION

Epidemiology

In a study conducted by Lee, Y., et al.(2020), out of 3,191 patients, 488 patients (15.3%) experienced symptoms of anosmia or ageusia in the early stages of COVID-19. Anosmia or ageusia is significantly more common in women and in younger individuals. Of the 488 patients, 254 patients (52.0%) experienced anosmia and ageusia, 99 patients (20.3%) experienced ageusia alone, and 135 (27.7%) experienced anosmia alone. Can be seen in the diagram below.

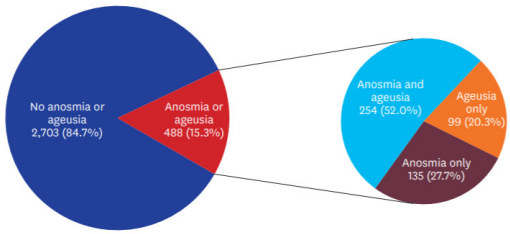

Figure 1. Proportion of anosmia in patients with coronavirus disease 2019 confirmed by polymerase chain reaction

Meanwhile, in a study conducted by Larco, MRC and Fernandez, CA (2020), the frequency of anosmia and dysgeusia in COVID-19 patients ranged from 22% to 68%. Where the symptoms of taste disorders become 33% experience dysgeusia 20% experience ageusia, and other taste disorders are found in 21% of patients with COVID-19. Research by Richardson. PJ (2020) stated that out of 259 patients who were successfully contacted, 63 patients (24%) experienced hypogeusia and 51 patients (20%) experienced hyposmia, while 43 patients (17%) experienced both symptoms.

Etiology

The Coronavirus Disease 2019 (COVID-19) pandemic has caused major disasters around the world.There is increasing evidence that olfactory dysfunction may occur in COVID-19 patients.Anosmia can occur alone or can be accompanied by other symptoms of COVID-19, such as a dry cough.However, the pathogenic mechanism of olfactory dysfunction and its clinical characteristics in patients with COVID-19 are still unclear. Several cross-sectional studies have shown that the incidence rate of olfactory dysfunction in COVID-19 patients varies from 33.9 -68 % with a female predominance. Anosmia and dysgeusia are often comorbid in COVID-19 patients.

In COVID-19 patients, the main manifestations are fever and cough characterized by lymphocytopenia and ground-glass opacity changes on chest computed tomography. Patients with severe infections may also develop neurologic manifestations such as acute cerebrovascular disease, skeletal muscle injuries, and disturbances of consciousness.In addition, some patients may present with upper respiratory symptoms such as pharyngodynia, sore throat, nasal congestion, rhinorrhea and changes in smell.Olfactory dysfunction (OD), including anosmia and hyposmia, manifests itself

prominently among these symptoms in COVID-19 patients.However, the extent of the potential OD manifestations of COVID-19 remains unclear.

One important symptom that quickly takes priority is anosmia.Hyposmia and dysgeusia have also been reported to varying degrees. Anecdotal reports have gained traction because anosmia is commonly expressed in positive SARS-CoV-2 patients globally, ranging from 15% to 66%, often in the absence of other symptoms. Interestingly, the majority of these people are in their 20s, who might otherwise not feel the need to take the necessary precautions because they are relatively asymptomatic and otherwise healthy.However, given the rapid infection of SARS-CoV-2 and increasing olfactory dysfunction as the only symptom in infected patients, this correlation should be taken seriously.With limited evidence, it is necessary to review the literature to guide current protocols.No peer-reviewed data has been reported regarding SARS-CoV-2 and PVOD, in large part because symptoms of anosmia have recently come to the attention of medical practitioners.

It is known that viruses such as influenza, adenovirus, various strains of coronavirus (229E, NL63, OC43), bocavirus, metapneumovirus, parainfluenza virus (serotypes 1-3), and rhinovirus can all cause pneumonia and severe respiratory symptoms.However, not all individuals routinely develop pneumonia or severe respiratory symptoms.In the majority of cases, infected individuals experience only mild upper respiratory symptoms; some may experience variations in anosmia, hyposmia, or dysgeusia.In a study conducted by Suzuki et al, 19 patients presenting with acute attacks of PVOD without a prior history of olfactory dysfunction, sinusitis, allergic rhinitis, or neurologic dysfunction were identified.

Clinical Manifestations

70% of patients are asymptomatic or with very mild symptoms, while 30% have some respiratory problems with high fever, cough, and then progress to severe respiratory failure requiring ICU care. So that several health policy agents divide CM Covid into several parts, namely mild, moderate or severe symptoms.In the manifestation of severe symptoms, there are severe pneumonia, ARDS, and also some extrapulmonary manifestations such as sepsis and septic shock.

Mild uncomplicated symptoms

These patients usually present with symptoms of a viral upper respiratory tract infection, including low-grade fever, (dry) cough, sore throat, nasal congestion, malaise, headache, muscle aches, or malaise. New sense of loss of taste and/or smell (anosmia), diarrhea, and vomiting is usually observed. Signs and symptoms of more serious disease, such as dyspnea, are absent.

Moderate pneumonia

Respiratory symptoms such as cough and shortness of breath (or tachypnea in children) occur without signs of severe pneumonia.

Severe pneumonia

Fever associated with severe dyspnea, respiratory distress, tachypnea (> 30 breaths/minute), and hypoxia (SpO2 <90%).However, the symptoms of fever must be interpreted with caution because even in its severe form, it may manifest mildly or even be absent.

The most frequently reported laboratory abnormalities were reduced lymphocyte count, increased C-reactive protein, and increased lactate dehydrogenase.However, all of these laboratory markers are highly non-specific, limiting their clinical utility.When evaluating suspected cases, doctors cannot rely on these laboratory abnormalities to exclude or confirm a diagnosis of COVID-19.

Diagnosis

Detection as early as possible is very important to suppress Covid 19. Diagnostic tests to confirm the Corona virus currently available are: reverse-transcription polymerase chain reaction (RT-PCR), real-time Reverse-transcription polymerase chain reaction (rRT PCR), and Loop-mediated isothermal amplification (RT-LAMP). RT-LAMP has a sensitivity similar to rRT-PCR, has a very high specificity and is used as a MERS-CoV diagnostic tool. For now, swabs of the oropharynx,

nasopharynx, and laboratory tests are diagnostic criteria for COVID-19. The RT-PCR test used in the health protocol uses the RdRp (RNA polymerase) gene test from SARS-CoV2 to confirm positive results. In Wuhan the positive rate of 4880 cases from one hospital has an overall positive rate of 38%. From the orovaring swab, 53 % of patients were positive for SARS-Cov2. Of the 51 patients who were confirmed positive, 71% of the patients were RT-PCR positive the first time they took the swab sample.Results from RT-PCR are positive after 2-8 days. For now, patients with symptoms of fever, sore throat, fatigue, cough, or shortness of breath accompanied by exposure to Covid-19 can be diagnosed with a Thoracic CT scan even though the RT-PCR results are negative. The findings of a chest CT scan of a patient with SARS CoV 2 are similar to MERS-CoV because they come from the same family (coronaviridae). Typical CT scan findings are bilateral pulmonary parenchymal ground-glass and consolidation of the lungs, sometimes with rounded morphology and distribution in the periphery of the lungs. Specifically in the lung cavity, discrete pulmonary nodules, pleural effusions, and lymphadenopathy were not found. Pulmonary disorders on the most severe chest CT scan appeared after 10 days of the onset of the initial symptoms. Thoracic CT scan can be used as a tool to assess the severity of COVID 19. COVID 19 also manifests on CT scans without any symptoms, rapidly changing from unilateral focal to diffuse bilateral ground glass accompanied by consolidation within 1-3 weeks. Integrating clinical assessment, laboratory and imaging tests can facilitate the diagnosis of COVID 19 (Zhai et al., 2020).

Diagnosis of olfactory dysfunction in COVID-19

Smell disturbance test in Covid 19 patients to assess the quality of life of patients with symptoms of anosmia and hyposmia using the short version of the questionnaire of olfactory disorders negative statement or sQODNS Questionnaire. The score results from the questionnaire in anosmic patients were lower than in patients with hyposmia or norosmia. You can also use general smell tests such as the UPSIT test, Cross-Curtural Smell identification test (CC-SIT), T&T olfactometry test, and use other olfactory tests. In addition, acoustic rhinometry tests, CT scans, MRI can identify odor mechanisms for olfactory dysfunction, especially conductive disorders and identify other causes. The use of nasal endoscopy is not recommended if it is performed on COVID 19 patients because it can transmit the virus to other people. (Kang et al., 2020)

Management or medication

Until now there is no therapeutic consensus in the management of the treatment of symptoms of anosmia, hyposmia and dysgeusia in covid patients. Most of the symptoms will resolve with time. Due to the high suspicion of anosmia in SARS-CoV-2 positive individuals, the use of corticosteroids is directly contraindicated in patients with anosmia, reports have shown that the use of corticosteroids can increase Covid-19 infection associated with an increased risk of immunosuppression (Lao, WP, 2020). But on the other hand a study conducted by Lechien, et al that the most frequently used treatment for olfactory dysfunction in Covid patients is nasal saline irrigation, then nasal corticosteroids, oral corticosteroids, and others such as vitamins, non-corticoid decongestants.

Some literature suggests that olfactory training involving repeatedly and deliberately sniffing a set of odors (usually lemon, rose, clove, and eucalyptus) for 20 seconds each twice daily for at least 3 months (longer if possible) shows improvement in smell. in post-infection patients after olfactory training. Olfactory training can be considered because this therapy has low costs and negligible side effects (Whitcroft KL & Hummel T, 2020).

Complications and Prognosis

A study revealed that there was a significant relationship between anosmia symptoms and Covid19 positivity. In addition, it is stated that those who experience anosmia are more likely to experience dysgeusia and without symptoms of fever / cough / dyspnea.Lechein et al.studied 417 patients from 12 European hospitals, with mild to moderate forms of COVID-19. Approximately 85.6% reported olfactory dysfunction, 20.4% experienced anosmia, 12.6% phantosmia and 32.4% parosmia, with the remainder experiencing hyposmia. As many as 88.8 % of cases experienced respiratory problems. Of these, 78.9 % experienced ageusia and the rest experienced dysgeusia. It was

also reported that anosmia and ageusia are complications of the peripheral nervous system from COVID-19.patients with mild to moderate COVID-19 demonstrated that not all patients returned to their normal ability to smell 15 days after the onset of the first symptoms. Anosmia and hyposmia often go unnoticed in COVID-19 patients, and these patients require objective testing.Anosmia is not a predictor of severe manifestations of COVID-19 (Konala et al., 2020; Rieg et al., 2020; Sheraton et al., 2020).

Prevention

According to (Ministry of Health RI, 2020), 5 important things that can be done to prevent transmission of COVID-19 in the community, namely: frequently wash hands with soap; work, study, and worship at home; wear a mask if you are sick or have to be in a public place; keep your distance and avoid crowds; and take a shower and change clothes as soon as you get home.

Figure 2. The important things that can be done to prevent transmission of COVID-19 in the community

4. CONCLUSION

Based on the explanation above, it can be concluded that one of the main symptoms of COVID-19 infection is anosmia, hyposmia and dysgeusia.By knowing these symptoms, it is hoped that the community will be more alert and more alert to the COVID-19 infection.Prevention that can be done, of course, is by following health protocols such as wearing masks, avoiding crowds, and maintaining personal hygiene, one of which is diligent hand washing.

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