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Relationship between the severity of covid 19 and anosmia in patients of covid 19

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ABSTRACT

The pandemic of Coronavirus Disease (COVID-19) has wreaked havoc on the planet. COVID-19 patients are increasingly showing signs of olfactory impairment. As well as anosmia, COVID-19 can also cause a dry cough.

1. Introduction

COVID-19 has had a huge influence on public health because of its high transmissibility, which has led to a rapid spread around the world. In addition to respiratory droplets, aerosol, and contaminated vomit, the novel coronavirus has the capacity to spread through direct touch between humans [1]. Fever, cough, tiredness, myalgia, arthralgia, and dyspnea are the most common symptoms, which can lead to respiratory failure [2]. Other non-respiratory symptoms, such as palpitations and diarrhea, might precede or accompany respiratory symptoms. Other symptoms may include headaches and dizziness [3]. However, there is some evidence to suggest that the virus targets cells that express receptors for Angiotensin 2 Converting Enzyme (ACE) (ACE2). Heart and blood vessel epithelial cells express ACE2 receptors more than any other organ, with the lung being the most impacted by covid19 [4]. This does not appear to be the sole pathway for viral entrance into cells, as the liver, despite its lack of ACE2 receptors, is severely impacted [5]. It appears that the Central Nervous System is responsible for the neurotropism of SARS-COV-2 by expressing ACE2 receptors in the brain (CNS). Studies support the idea that the coronavirus has a preference for the olfactory neuroepithelium and that verified instances of the illness have neurological symptoms [6], [7].

In the wake of the COVID-19 epidemic, there was an upsurge in instances of sudden loss of smell (SLoS). Because of the physiological relevance of olfaction in recognizing environmental variables and possible dangers, a reduction in life expectancy is associated with the loss of olfactory sense, even in those without a diagnosis of neurodegenerative illness such as Alzheimer's or Parkinson's disease [8]. Human rhinovirus, parainfluenza, coronavirus, and Epstein-Barr virus have all been linked to post-viral olfactory impairment [9]. Hyposmia or anosmia etiology studies from the United States, Japan, and Europe indicate that post-

viral causes account for 18 percent to 45 percent of cases [2]. Anosmia, on the other hand, is typically not accompanied with nasal obstruction in SARS-Cov-2 patients. COVID-19 and other viruses can cause post-viral anosmia. A number of ideas have been proposed by scientists to explain why COVID-19 causes anosmia, including early research that suggests sustentacular cells, which support the olfactory system in the nasal cavity, get infected, causing an immune response to combat the illness. In turn, the nerves cease to work correctly. Sufferers may still sense scents, but the smells may not be what they are used to. For example, the typically pleasant fragrance of coffee may now seem rotten to those who are suffering from this condition. "Burning, decaying flesh and mold" characterize the distorted scents, according to charity Fifth Sense, which helps people with smell and taste disorders.

Recently, the American Journal of Otolaryngology published a research that supports this theory, showing that infection with SARS-CoV-2 may lead to varying degrees of olfactory abnormalities [10- 14]. A study in Italy and Iran found that hospitalized patients with a confirmed diagnosis had a loss of scent.

Coronavirus disease 2019 (COVID-19) patients can be categorized as follows based on the severity of their sickness [15]:
- Individuals who test positive with SARS-CoV-2 but have no symptoms
- Illness classified as "mild" when there are no shortness of breath or dyspnea as well as no abnormal imaging.
- Low respiratory disease is indicated by clinical evaluation or imaging and an oxygen saturation (SaO2) of above 93 percent on room air at sea level in individuals with moderate sickness.

The severity of the disease is defined as having a respiratory rate of over 30 breaths per minute, a SaO2 of up to 93 percent on room air at sea level, a PaO2/FiO2 ratio below 300, or more than 50% lung infiltrates.

Aim of study: Current research seeks to determine the prevalence and severity rates among patients with covid19, as well as the prevalence and severity rates among Al Kindy medical students with asymptomatic and moderate infections.

2. Methodology

This study is a descriptive Cross-Sectional design and was conducted in Al-Kindy College of Medicine, from 13th of December 2020 to first of July 2020.The study sample include students of Al-Kindy College of medicine and only a convenient sample of 50 students were recruited in the current study. Inclusion criteria included: Having proper smell sensation prior to covid-19 illness, and proved infection with covid 19. Exclusion criteria: Any medical or surgical interference that may affect olfaction like sinusitis, trauma to nose, nasal obstruction. The variables included in the study were: Age, number of people infected with coronavirus, degree of anosmia and symptoms. An online questionnaire by Google forms was used to collect the data the questionnaire was filled by the students privately and separately. Statistical analysis was done by using IBM SPSS statistics 26 computer software. For sample description, a number and percentage was presented of tables and graphs. The research proposal was approved by the ethical committee in AL-Kindy College of Medicine.

3. Result

In the study among Al-Kindy medical students found most of the students have anosmia (66%). There are others symptoms of covid19, most common are fever and muscle pain (80%), shortness of breath (62%) and sore throat (50%).

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The percentage of spo_2>94 can be high (68%) and spo_2<94(32%).

Patients of covid19 can be grouped into: mild, moderate and severe, this study found moderate cases is higher (44%) than mild (32%) and severe (24%).

Association between severity and anosmia in covid19 found that anosmia is higher in moderate patients (48.5%), in mild patients (30.3%) and in severe (21.2%).

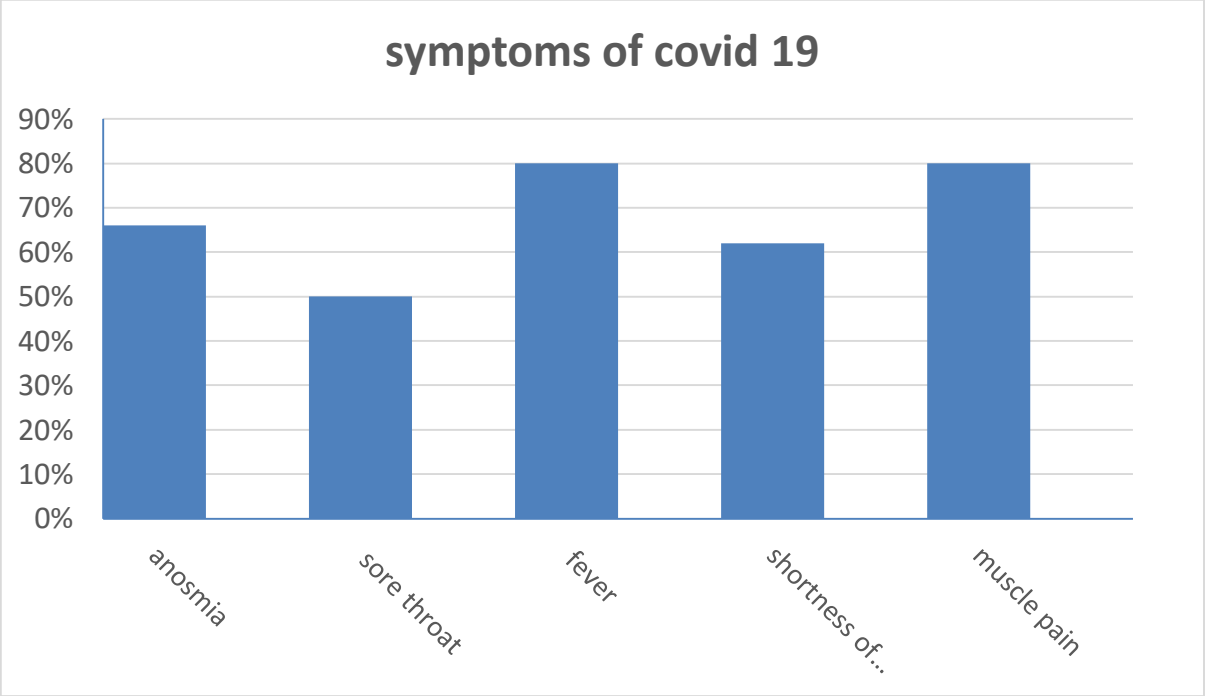

Figure 1: percentage of the most common symptoms in patients of covid 19.

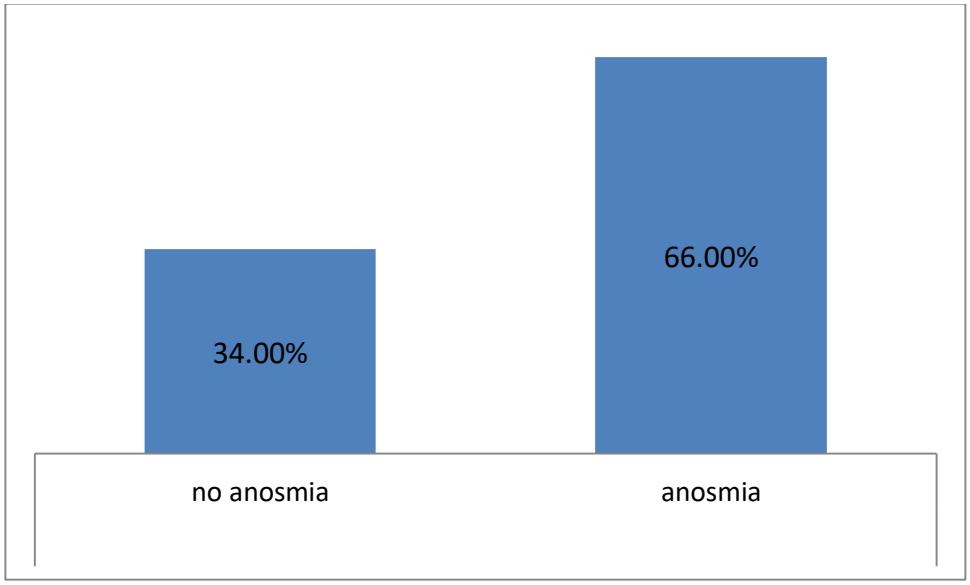

Figure 2: The study found 66% of the sample suffer from anosmia while 34% do not suffer from anosmia in covid19 positive patients

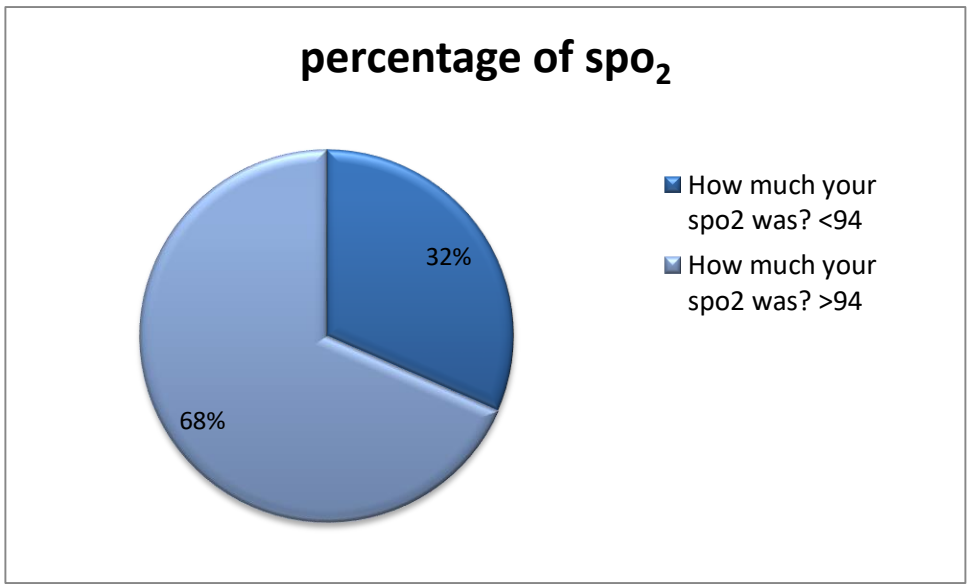

Figure 3: Percentage of spo_2 >94 was higher than spo_2<94.

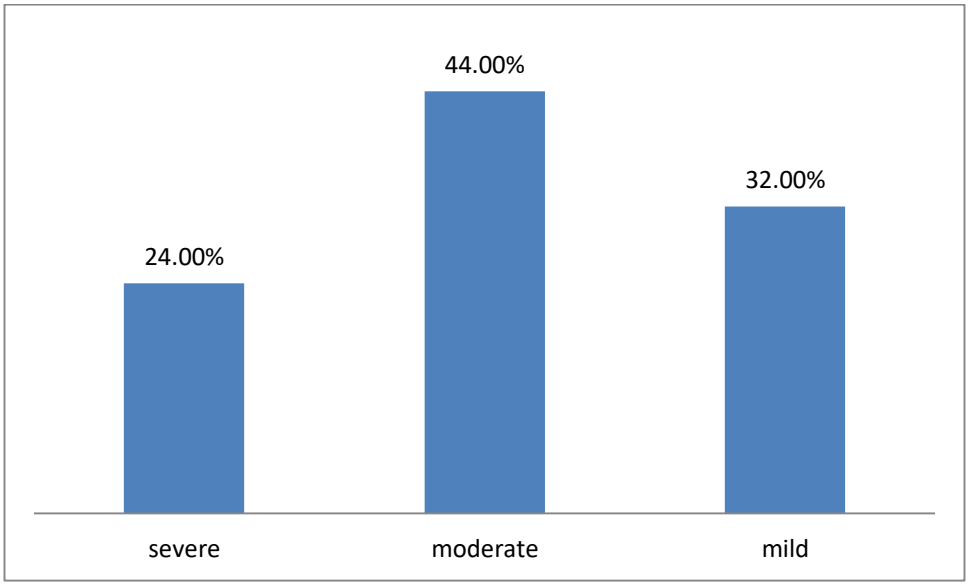

Figure 4: Percentage of mild, moderate, and sever in covid 19 positive patients. The study found moderate was the most common among students of AL-Kindy College.

Table 1: association between severity and anosmia. The study found that anosmia was higher in moderate patients than mild and severe.

Relationship between anosmia and severity of covid19		anosmia			
		yes		no	
		Count	Column N %	Count	Column N %
severity	mild	10	30.3%	6	35.3%
	moderate	16	48.5%	6	35.3%
	severe	7	21.2%	5	29.4%

4. Discussion

As a result of covid19 infection, anosmia is very common. There are cases where people with COVID-19

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have anosmia that appears suddenly, with no accompanying symptoms. This condition is preceded by other minor symptoms such as a dry cough that are usually not life-threatening. Al-Kindy medical students suffer from anosmia in 66 percent of cases, whereas in Wuhan city 8.2 percent of patients have olfactory problems. The incidence of olfactory disorders linked with covid19 infection in China is significantly lower than that in the United States and Europe [16]. Anosmia affects 15% of COVID-19 patients, according to a Korean research [17].

This condition was more common in those with nonspecific symptoms such as flu-like illness or exhaustion. The median period from nonspecific symptoms to the start of OD was 3 days. Chemosensory abnormalities developed early in covid19, and there was no significant correlation between nasal irritation symptoms and objective OD.

It was discovered that the prevalence of olfactory dysfunction was 85.9% in mild COVID-19 cases, 4.5 percent in moderate instances, and 6.9% in severe-to-critical cases, according to a French research published in the Journal of Internal Medicine.

In Iran, more than half of the patients (58 %) were anosmic, severely anosmic (33%), while 27% exhibited moderate anosmia and 13%had mild anosmia.

5. Conclusion

In this study, the overall prevalence of anosmia among Al-Kindy medical students was found to be high. In moderate cases, anosmia was higher than mild and sever, shortness of breath also was high in moderate.

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