Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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Letter to the Editor

COVID-19

Sudden onset anosmia and dysgeusia in two patients: An early sign of SARS-CoV-2 infection

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is the origin of the current pandemic of coronavirus disease 2019 (COVID-19) that was identified in hospitalized patients in Wuhan, China, in December 2019 [1]. Then, after its rapid spread throughout the world it has been labeled as a Public Health Emergency of International Concern by the World Health Organization (WHO). About 338,307 cases have been reported, including 14,602 deaths [2] with a fatality rate at about 4% reaching more than 7% in Italy [3]. Clinical characteristics are not all clear yet, as reported symptoms were in most cases of mild fever (87.9%) and cough (67.7%), with various other less common symptoms reported, but no cases of isolated sudden onset anosmia have been reported.

The first case is a 40 year-old woman non-smoker working as a physician; weighing 62 kg, measuring 162 cm, with a body mass index (BMI) of 22 kg/m^2. Her medical history shows an exercise asthma treated by salbutamol and budesonide (last taken in December 2019), migraines treated by eletriptan on demand, a surgical history of wisdom teeth extraction and an obstetrical history showing three pregnancies with two healthy children and one spontaneous miscarriage. Currently taking oral contraception. She is allergic to latex. Her family history shows a father with dementia (Lewy bodies) and a mother with colon cancer. Since the 20th of March, the patient reported waking up with total loss of smell (associated with a loss of taste) with no rhinorrhea, no stuffy nose, no fever, no dyspnea, no myalgia nor fatigue. Furthermore, the patient has noticed an increase in frequency of her migraines since the 10th of March. The clinical examination was normal, with the absence of swollen lymph nodes. The clinical examination was performed by an ENT physician, and no nasofibroscopy evaluation was required considering the mildness of the symptoms. The patient was sent home on a sick leave, with a persisting anosmia five days after the start of the complaint.

The second case is a 29 year-old woman, non-smoker, working as a physician in the same medical structure and department, weighing 52 kg, measuring 162 cm, with a BMI of 19.8 kg/m^2. She has a clinical history of appendectomy; obstetrical background shows no pregnancies, and currently under oral contraception. She is allergic to amoxicillin/clavulanic acid. She has a family history of breast cancer in her maternal grandmother and a maternal aunt. She reported a total anosmia with an associated dysgeusia that started on the 21st of March, with no rhinorrhea, no stuffy nose, no fever, no dyspnea, no myalgia nor fatigue, and no swollen lymph nodes on the clinical examination and no other ENT symptoms. The clinical examination was performed by an ENT physician, and no nasofibroscopy evaluation was required considering the mildness of the symptoms. The anosmia persists 4 days after the complaint.

We started olfactory training for both patients, with different aliments like vanilla, lavender, spices and coffee.

We performed a screening on the previous cases with a nasopharyngeal swab by the GeneFinderTM COVID-19 Plus RealAmp Kit (ELITech) using real-time PCR assay [4]. Both tests were positive.

1. Discussion

Since the first reported cases in China in December 2019, more than 350,000 cases were reported worldwide, with more than 180,000 cases in the European Union, and the UK [2]. According to Wu and McGoogan [5], among a total of 72,314 case records, symptomatic infection spectrum ranges from mild to critical. Eighty-one percent presenting a mild disease with no or mild pneumonia, 14% showing a severe disease (with dyspnea, respiratory frequency $>$ 30/min, blood oxygen saturation $<$ 93%, a partial pressure of arterial oxygen to fraction of inspired oxygen ratio $<$ 300; and or lung infiltrates $>$ 50% within 24 to 48 hours, on CT-scan). About 5% of infected patients are admitted in the intensive care unit (respiratory failure, septic shock, and/or multiple organ failure), and an overall mortality of about 4% (reaching more than 7% in Italy [3]).

Clinical characteristics varied from fever (87.9%), cough (67.7%), and fatigue (38.1%), whereas diarrhea (3.7%) and vomiting (5.0%) were rare. Recently, ear nose and throat (ENT) physicians have suggested early ENT symptoms like anosmia and dysgeusia in patients infected with SARS-CoV-2, but these findings were not highlighted in recent studies, with no data about its frequency. Those two previously reported cases of early-onset anosmia can possibly confirm their observations and could be another benign symptom.

Loss of smell occurs in 18% of patients following upper respiratory tract infections (URTI) of viral origin [6], as Influenza infection. Even though biopsies have suggested that a direct damage of the olfactory receptor cells could explain the clinical features [7], this complication is not well understood. The fact that this particular clinical features was not directly mentioned in the Chinese studies might be explained by a seasonal pattern of URTI-related anosmia with a usual peak in March, which can be also responsible for this peak with the SARS-CoV-2 infection [8]. It might be an infection by a milder strain of the virus, even though a phylogenetic analysis and sequence alignment showed an extremely high homology of different virus isolates [9], but this needs further investigation.

The National Professional Council of ENT (NPCENT) in France does not recommend a systematic screening in the presence of

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isolated anosmia and dysgeusia. Yet, the interest of performing a screening in health care workers having isolated anosmia might be of great importance since more strict measures to control the spread of the disease (strict confinement at home, or avoiding health care provider – patient contact). Here, we have two cases of confirmed SARS-CoV-2 infection, both having isolated anosmia; with a probable context of a worker-to-worker transmission (with an interval of the onset of symptoms around 24 hours). Both patients could have transmitted the infection to old and/or fragile patients if they were not sent home since hospital-related transmission rate is high. In a single-centered case-series of 138 hospitalized patients, a presumed hospital-related transmission was estimated in 41% of patients [10]. This might be an argument to perform a focused screening of health care providers and hospitalized patients. Plus, if anosmia could give a clue about the onset of the disease, more outpatient pauci-symptomatic cases would be screened, leading to less-spreading of the disease.

The evolution shows persistence of the complete anosmia, with no improvement, for both patients five and four days after the onset of the complaint. Since the NPCENT did not recommend a medical treatment (no glucocorticoid), smell training could be beneficiary for the patients affected by anosmia [11]. Furthermore, in case of persistent anosmia, a focused screening of health care providers could be considered for future medico-legal considerations.

In a study comparing the aerosol and surface stability of SARS-CoV-2 and SARS-CoV-1 [12], their half-lives were similar in aerosols; and both viruses showed similar stability under the experimental circumstances tested. This might suggest that epidemiological differences might be explained by an asymptomatic transmission, which is another argument for a focused screening in all health care providers.

The actual number of cases is unknown and is probably underestimated, since asymptomatic cases have been reported with unknown frequency [13], and that mild infections could have passed unnoticed. This possible underestimation of infected subjects can affect subsequently the other percentages (ICU admission and fatality rate). Performing large scale screening would serve for more evidence-based epidemiological data, thus could reducing the general anxiety of the population. This form of SARS-CoV-2 infection appears to be relatively benign, suggesting a favorable immunological response since both patients are physicians, or possibly the presence of different strains of the virus.

2. Conclusion

This work is the first to describe the possible association between anosmia and SARS-CoV-2 infection. The fact that both cases were physicians working in the same structure with a possible worker to worker transmission could justify systematic (or focused) screening of health care providers which could drastically minimize the health worker-patient transmission by applying the necessary measures (like home confinement). We think that a systematic (or focused) screening of health care workers might be helpful to provide evidence-based epidemiological data, and reduce the general anxiety cause by a probable underestimation of cases. In addition, screening all health care workers might be economically difficult, yet it might be cost effective, if it leads to taking the necessary measures and the reduction of hospital transmission of the disease.

Ethics

Both patients have signed a written consent to be a part of this case report.

Contributors

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Disclosure of interest

The authors declare that they have no competing interest.

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