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LETTER TO THE EDITOR

The role of self-reported olfactory and gustatory dysfunction as a screening criterion for suspected COVID-19

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Dear Editor,

We read with interest the paper written by Lechien et al. [1] describing a multi-centre cohort of COVID-19 patients, in which 85.6% had olfactory or taste disorders (OTD). If the association between COVID-19 and OTD is not recognized, the diagnosis may be missed. However, while a large proportion of COVID-19 patients had OTD, [1–3] the actual specificity as a criterion for screening suspected COVID-19 cases is unknown, as other viral infections may also cause OTD. Other studies have reported patients presenting with acute anosmia with or without upper respiratory tract symptoms, [4, 5] but not all patients were tested for COVID-19 [4]. Additionally, information on OTD in Asian cohorts is lacking [1]. In Singapore, the first case of COVID-19 was reported in end-January 2020. At our institution, the largest acute hospital in Singapore, from end-March 2020 all new admissions were screened for self-reported OTD at emergency department (ED) triage. All patients reporting new-onset OTD were admitted to exclude COVID-19. We report our experience using self-reported OTD as a screening criterion for suspected COVID-19.

Over a 2-week period from 26 March–10 April 2020, given ongoing community transmission and the difficulty in distinguishing COVID-19 from ordinary viral infection, a questionnaire including respiratory symptoms, self-reported OTD, and travel and epidemiological risk factors was administered at ED triage to risk-stratify admissions. Suspect case criteria for COVID-19 were defined as the presence of respiratory symptoms and suspicious epidemiological links or travel history; or new-onset OTD. Testing was not limited to hospitalised inpatients; as part of the national strategy of containment, all patients who fulfilled suspect case criteria for COVID-19 were tested via real-time reverse transcription PCR (rRT-PCR) of oropharyngeal swabs, even if hospitalization was not otherwise required. Inpatient, if patients had respiratory symptoms and a viral prodrome, or OTD, oropharyngeal specimens were also tested for a routine panel of respiratory viruses. As this study was based on aggregated surveillance data, ethics approval was not required under our hospital's Institutional Review Board guidelines.

Over the study period, a total of 870 patients fulfilled suspect case criteria for COVID-19 at ED triage. A minority (5.05%, 44/870) presented with OTD. The majority of suspects (65.3%, 568/870) were well and discharged to self-isolate while awaiting results. Amongst suspected COVID-19 cases, 154 patients (17.9%, 154/870) tested positive. Of those, roughly one-fifth (22.7%, 35/154) had OTD. The presence of OTD had high specificity as a screening criterion for COVID-19 (98.7%, 95% CI 97.6–99.4%), but lower sensitivity (22.7%, 95% CI 16.4–30.2%). This was roughly equivalent to the specificity and sensitivity of a history of close contact with a confirmed COVID-19 case (specificity: 94.8%, 95% CI 93.0–96.3%; sensitivity: 27.3%, 95% CI 20.4–35.0%), Supplementary Table 1. Amongst the 35

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COVID-19 positives with concomitant OTDs, three presented with isolated anosmia without other symptoms. Fever was the most common concomitant symptom (21/35, 60.0%), followed by cough (10/35, 28.5%) and rhinorrhea (10/35, 28.5%). Over the same period, a total of 71 admitted inpatients tested positive for other respiratory viruses, of which the most common was rhinovirus (53.5%, 38/71); followed by influenza (21.1%, 15/71), adenoviruses (8.5%, 6/71), other coronaviruses (7.0%, 5/71). Only 2.8% (2/71) self-reported OTD (one rhinovirus, one human coronavirus 229E). Amongst patients with PCR-proven acute respiratory viral infections, those positive for COVID-19 had higher odds of OTD compared to those positive for other respiratory viruses (odds ratio, OR = 10.14, 95% CI 2.37–43.49, $p < 0.001$).

In conclusion, self-reported OTD had high specificity as a screening criterion for COVID-19 in an Asian cohort. Patients with COVID-19 appeared to have higher odds of OTD compared to those positive for other respiratory viruses. Routine screening in patients with new-onset OTD can improve case detection during a COVID-19 outbreak.

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Compliance with ethical standards

Conflict of interest The authors report no conflicts of interest.

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