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.

COVID-19 and upper respiratory tract: Collecting swab specimens from patients inhaling corticosteroids

To the Editor:

Jian et al[1] in a recent article refer to the immune reaction of the upper respiratory tract (URT) in patients infected by severe acute respiratory syndrome coronavirus (SARS-CoV)-2 (coronavirus disease 2019 [COVID-19] pandemic). The authors wonder about the consequences of inhaled corticosteroids (ICSs) on immune reaction. We share the queries of Jian et al, from a practical point of view.

Since late February 2020, when the COVID-19 outbreak exploded in Greece, emergency departments (EDs) of major hospitals were enrolled in triaging patients with suspicious clinical presentation. Medical staff was called to perform nasopharyngeal and oropharyngeal swabbing, irrespective of specialization, and forwarding the samples for a PCR. Training was offered through educational videos.[2] The authors of this letter are going to maintain such a triage during the summer months when a wave of tourists from countries with different prevalence of COVID-19 is going to visit Greece. Pitfalls in performing nasopharyngeal or oropharyngeal swabbing are not negligible. Learning from the experience of previous medical personnel engaged in ED, we focus on an intriguing problem we are going to cope with.

Given the pneumonologic character of the hospital and the seasonal allergies, 15% to 25% of patients admitted to the ED are expected to suffer exacerbations of chronic obstructive pulmonary disease, asthma, rhinitis, and rhinosinusitis. Most of them are under chronic or seasonal therapies with ICSs, oral or intranasal. With the URT sprayed by ICSs, we are wondering about the diagnostic accuracy of specimens collected. Asking patients to blow their nose, or postponing the procedure is not feasible, as far as we ignore the washout period needed for an ICS, especially in chronic administration.

ICSs are likely to modify the replication of commensal and pathogenic virome in the nasopharynx, oropharynx, and saliva.[3] Medical literature regarding the effects of ICSs on pathogenic virome of the URT is scarce. We try to extrapolate data from previous coronavirus epidemics, namely, SARS-CoV, Middle East respiratory syndrome (MERS), and HCoV-229E. ICSs are expected to enhance pathogenic viral replications in the URT, predisposing to subsequent bacterial infection.[4] This is likely for inhaled cortisone, prednisolone, dexamethasone, and fluticasone. Contrarily, mometasone inhibits the replication of SARS-CoV and HCoV-229E.[5] Similarly, budesonide degrades the virulence of HCoV-229E.[6] Recently, the ICS ciclesonide was found to suppress the replication of SARS-CoV-2, by directly attacking the NSP15 viral endoribonuclease, demonstrating an antiviral function.[7]

Therapies with ICSs modulate the innate defensive mechanisms of the URT, interfering with cytokines, while at the same time perturbate the abundance and replication of commensal and pathogenic viruses.[3,7] Depending on the chemical composition of ICSs, the impact on the virome of the URT is unpredictable. With this in mind, swabbing the URT of coronavirus-infected patients under an ICS regimen renders the quality of the viral load collected questionable. Taking alternative specimens from pleural effusions, stools, or even blood is of dubious diagnostic value.

With all this scepticism in our minds, we are preparing ourselves to cope with the intricacies of triaging in a COVID-19 era, performing with responsibility the swabbing techniques, ensuring specimens of high diagnostic accuracy.

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