

LETTER TO THE EDITOR**The impact of lockdown on allergic rhinitis: What is good and what is bad?**

To the Editor,

We read with great interest the Editorial by Gelardi et al about the adverse effect of lockdown on patients with perennial rhinitis to dust mite.¹ The authors brilliantly highlighted one of the issues derived from the government's measures to minimize SARS-CoV2 transmission with the aid of social distancing and mass face masking and, as the pandemic is still ongoing worldwide, the reduction of exposure to nasal irritants is becoming of the uttermost importance. However, this is just one of the potential effects of lockdown on the allergic rhinitis population: forcefully obliged at home, many people were exposed not only to indoor allergens such as dust mites but also to several other pollutants linked to different human activities (eg, tobacco and cooking smoke, chemical vapors of cleaning products).²⁻⁴

The air pollution has long been regarded as a public health concern because of its association with increased susceptibility to respiratory infections and with the exacerbation of allergic respiratory diseases.² COVID-19 pandemic impacted billions across the world and economies have come to a grinding halt that has caused a transient improvement in air pollution that was documented in the most industrialized areas

(Figure 1, NO₂).^{5,6} Although other climate variables may also have a role, such a situation is probably a major cause for air quality improvement.⁵

In the northern hemisphere, such unparalleled lockdown has coincided with the advent of spring and with the usual peak in seasonal allergic rhinitis (AR). It is still unclear what is the impact of air pollution on AR and asthma because of their complex interrelationships.² Experimental works and clinical evidence have shown that airborne pollutants can interact with pollen so as to exacerbate these conditions.^{2,7} Such interactions, mainly with outdoor allergens, can occur through several mechanisms that have been only partially elucidated: for instance, chemicals might facilitate pollen release, increase the expression of some allergens in pollen grains, and promote a non-specific airway inflammation.²⁻⁴ Overall, the environmental pollution may worsen allergic response by increasing the allergenicity of outdoor pollen and by promoting nonspecific airway inflammation.^{2,7}

Based on these highlights, we believe that we are having an invaluable opportunity to understand how human activities can affect both air and life quality in the allergic population. As previously stated, AR and asthmatic patients are supposed to benefit from the reduction of

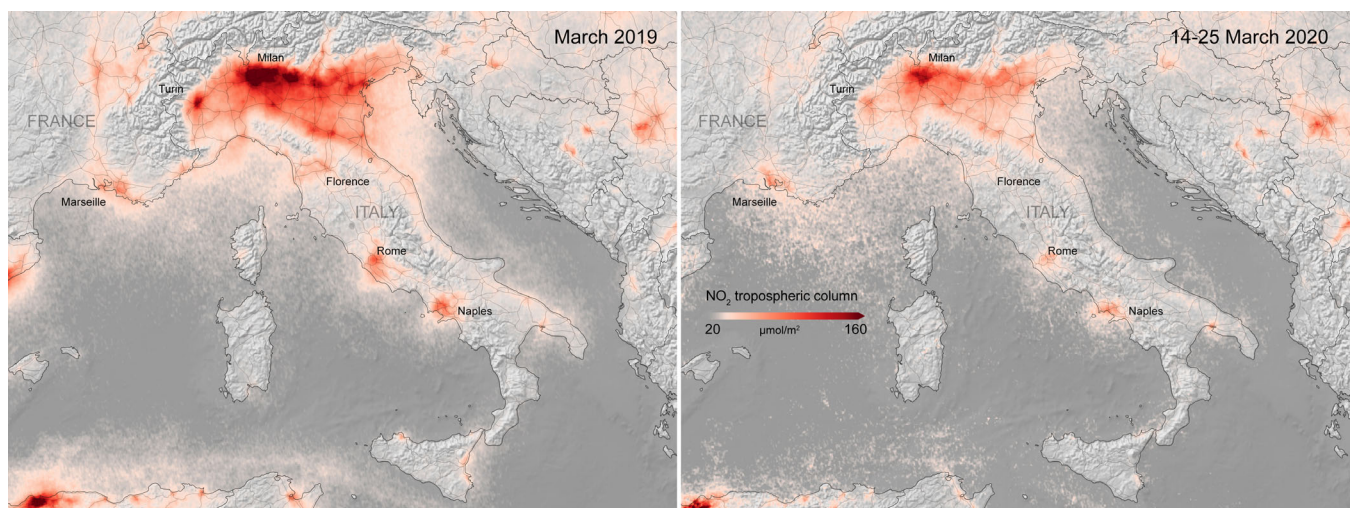


FIGURE 1 These images, using data from the Copernicus Sentinel-5P satellite, show the average nitrogen dioxide concentrations, above Italy, from March 14 to 25, 2020, compared to the monthly average concentrations from 2019. (© contains modified Copernicus Sentinel data [2019-2020], processed by KNMI/ESA)⁶

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air pollution but we can hypothesize that breathing “cleaner” air with fewer pollutants, which are able to alter pollen allergenicity in a dose- and time-dependent manner, could, paradoxically, increase the inhalation of purified allergens, thus causing worsening of symptoms in allergic populations.^{2,7} Ascertained that it is difficult to establish the interaction between allergens and pollution, we would like to highlight another issue: the use of facial masks. In fact, many governments currently advise the population to wear a face mask outdoors. Although people wear such devices to protect themselves from COVID-19, masks can also reduce the concentration of inhaled airborne allergens because of a size-dependent filtration.⁸

In conclusion, while we agree with the authors that ad hoc guidelines for AR patients during this pandemic should be rapidly developed, we believe that, until more data on the complex interrelationships between allergy and pollution are gathered, no clear-cut recommendations can be given. COVID19 lockdown in polluted industrialized urban areas may generate the paradoxical effect of both ameliorating the symptoms and the quality of life in the seasonal allergic population, especially when wearing a face mask, while worsening the symptoms in those sensitized to indoor perennial allergens. In these terrific times, we can, however, gather real-world evidence to clarify these questions and we as rhinologists must not lose this unique chance.

KEYWORDS

allergic rhinitis, COVID-19, lockdown, pollution, seasonal allergy

CONFLICT OF INTEREST

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