

## Commentary on Asthma and COVID-19, What is Known about Inter-Relation till Now

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**Received:** January 09, 2021; **Published:** February 18, 2021

COVID-19, the pandemic caused by the Virus SARS-COV2, has been associated with high mortality across the world, with many instances of acute Respiratory Distress Syndrome (ARDS) and multi-organ dysfunction. It has been proposed that the presence of co-morbidities, such as asthma, may have accounted for these complications. In this Editorial, we will highlight the updated evidence in the medical literature on asthma and COVID-19, either as predisposing factor for COVID-19 onset or as an aggravating factor when associated with COVID-19 [1-5].

First question: Does asthma predisposes to COVID-19 onset and does it increase COVID-19 severity?

A systematic review and meta-analysis showed that severe or non-severe asthma were not associated with COVID-19 illness onset or severity or mortality. Even after correction for other co-morbidities (such as obesity and others), no association was found and the authors stated that more studies are needed [1]. Global Initiative for Asthma (GINA) supported this point of view [2]. The ARIA-EAAA also reviewed the topic. In a consensus statement, they gave a pathological interpretation on why asthma may not be a risk factor for COVID-19. Briefly, ACE receptors and TMPRSS which are considered entry points for the virus appear to be reduced in asthma. The statement indicated that this decreases the chances that asthma may act as co-morbidity for COVID-19. The role that T helper 2 Lymphocytes may play was not addressed. The consensus statement issued in June 2020 noted that most published studies do not address the presence of co-morbidities and highlighted the need for larger studies to understand the relation between asthma and COVID-19 onset and or severity [3].

A second practical issue related to whether the symptoms attributed to COVID-19 may be related to undertreatment of asthma by oral corticosteroids for severe asthma attacks. This concern was addressed by GINA which noted that it is difficult to distinguish whether the onset of new severe respiratory symptoms is due to asthma exacerbation or to COVID-19 infection. The International Primary Care Respiratory Group (IPCRG), shared this view. In many instances, this controversy has resulted in physicians hesitating to give oral corticosteroids (OCS), which are life saving in severe asthma exacerbations [3].

The third issue about the interaction between asthma and COVID-19 addresses asthma management concerns during COVID-19 infections. GINA and NICE recommend to continue ICS and give OCS if severe exacerbation occur during COVID-19 pandemic even in confirmed COVID-19 cases. They assert that OCS are lifesaving. Similarly, ICS and LABA plus a small dose of OCS should continue for severe asthma patients treated by daily preventive therapy because it is unsafe to stop [2-4]. This may not necessarily apply to the use of biologics. ARIA-EAAA recommends to delay biologics for severe asthma till recovery from COVID-19 and to continue to administer biologics for severe asthma for COVID-19 negative patients [3].

The fourth area of concern relates to social and cultural issues [5]. The Global Alliance against Chronic Respiratory Diseases (GARD-WHO), highlighted how these factors hamper the use of state-of-the-art management strategies in asthma patients. It is important not to neglect CRD management during COVID-19 pandemic as the focus may have moved to the pandemic itself. It is important to note that patients may avoid health services because fear of exposure to SARS-COV19 contagion. Furthermore, quarantine may also be associated with poor asthma symptoms control and poor follow up, as well as anxiety and depression. All of these factors lead to higher prevalence of severe asthma.

Health disparity is an issue for asthma patients during COVID-19 because some patient may have limited access to electronic equipment and social media.

One positive development is the decrease in air pollution due to COVID-19 lockdown. This has helped decrease severity of asthma exacerbations. We hope this will lead health authorities and other decision makers to reconsider their policies for air-pollution reduction and climate control.

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**Volume 10 Issue 3 March 2021**

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