Improved asthma control during the COVID-19 pandemic: are there lessons to be learnt?

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While the health impacts of acute COVID-19 pneumonia and long COVID have rightly been the focus of major medical research over the last 12 months, for many patients and healthcare providers an equal concern has been the impact of the pandemic on long-term conditions. Respiratory conditions are among the most common chronic diseases across patients of different ages. Three articles in this issue provide an informative lens through which to study the impact of the pandemic on airways disease, reporting significant reductions in severe exacerbations in different settings.

Two research groups have addressed this issue by examining the effect of the pandemic on asthma exacerbations in the UK. As the incidence of exacerbations changes over time both groups used interrupted time series methodology to establish any impact of lockdown adjusted for variation across the year and between years, with both studies finding a reduction in incidence of severe asthma exacerbations with the onset of lockdown. Specifically, Davies and colleagues found a 36% pooled reduction in emergency admissions for asthma in Scotland and Wales following lockdown,[1] whereas Shah and colleagues found a significant reduction in England in severe exacerbations managed in primary care with oral corticosteroids following lockdown though no significant reduction in exacerbations requiring hospital care.[2] Importantly, there was no evidence of a significant increase in asthma-related deaths following lockdown.

The magnitude of these reductions in exacerbations is striking and highlights how many exacerbations could potentially be prevented if we could understand and learn from why severe exacerbations have fallen over these months. The first major question is the degree to which this reduction is due to changes in external factors such as air pollution, changes in healthcare utilisation behaviour and/or improved self-management of long-term conditions. Ambient air pollution dramatically fell at the start of the pandemic; however, health gains from decreased outdoor air pollution during lockdown may have been offset by increased exposure to indoor air pollution and allergens, and, for many, by reduced exercise and increased psychological stress.

Reductions in other acute medical emergencies were also seen in the UK, implying potential changes to healthcare utilisation in general.[3] However, a more selective reduction in exacerbations of respiratory disease is evident elsewhere. Huh and colleagues in their study, also in this issue, found decreased hospitalisations for asthma, COPD, influenza and pneumonia during the early months of the pandemic in South Korea, compared with previous years, but no significant decreases in hospitalisations for a range of non-respiratory pathologies.[4] A selective reduction in acute respiratory (non-COVID) presentations suggests measures to reduce SARS-CoV-2 transmission may have also reduced transmission of other respiratory viruses that in contrast to SARS-CoV-2 are major triggers of airways exacerbations. The relative contributions of enforced social isolation through lockdown and of individual measures (such as mask wearing with better hand hygiene) to that reduction are unclear. To what extent behaviours that reduce transmission of respiratory viruses can be maintained is uncertain but the psychological impact of social isolation through lockdown is deleterious to health (with stress itself a known adverse factor in asthma control) and it is important patients with chronic diseases are not left isolated as society re-opens.[5] There are major differences in social distancing/lockdown policies between the UK and South Korea—the effects of differences in implementation of social distancing between countries on both transmission of other respiratory viruses and also social isolation is an important subject for future research. Are there long-term measures we can take to reduce the spread of respiratory viruses without impacting quality of life?

The contribution to the reduction in exacerbations from improved self-management with better preventive therapy adherence is also important to now establish as it represents a benefit that we can aim to perpetuate without adverse consequences. Adherence to asthma medication is related to beliefs about treatment and about potential adverse consequences of non-adherence.[6] Patients with chronic lung diseases may have been particularly concerned about the effects of the pandemic on their disease, with increased online searches on asthma and COPD observed at the onset of the pandemic.[7]

Perception of risk is an important factor in value judgements patients may make about the value of their medication and adherence to self-management plans. Consistent with perceived increased risk, Davies and colleagues report a spike in primary care general practice (GP) prescriptions for inhaled and oral corticosteroids in people with asthma in Wales in the week preceding lockdown.[1] Similarly in a study by O'Connor and colleagues in the USA, the investigators used survey data from adults with long-term conditions and found that 29% reported taking anticipatory action to obtain prescription medications at the start of the pandemic.[8] In a survey by Philip and colleagues of patients with chronic respiratory conditions early in the pandemic, 44% reported watching online inhaler videos, suggesting a need to ensure good self-management.[9]

When facing a global pandemic with uncertain impact on a prior diagnosis of asthma, patients appear to have taken action to optimise their self-management. It can be hypothesised that increased adherence to medication during the pandemic relates to an increased belief around the necessity of medication, compared with normal times, as proposed in the Necessity Concerns Framework.[10] Sadly, we have now had a second surge of COVID-19 in the UK and it would be of interest to know if similar trends were maintained over the later periods of the pandemic.

The pandemic has highlighted the importance of health beliefs and their effects on self-management. How patients with asthma perceive the risks of uncontrolled asthma have not been extensively studied. Descriptive research highlighting changes during the pandemic now needs to be followed by studies of interventions targeting health beliefs as a modifiable factor, within a Capability, Opportunity, Motivation behaviour change framework, to improve self-management and reduce avoidable asthma exacerbations.[11]

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