

pandemic there was a great sense of appreciation and empathy towards keyworkers, especially for healthcare workers. One example of this was when the nation cohesively stood out once a week to demonstrate their appreciation. Secondly, a reduction in the number of elective activities and fewer interventions meant that fewer complications resulted in fewer complaints. Lastly, when healthcare professionals were redeployed to take on roles that were outside their expertise, the GMC issued guidance on when one should be referred regarding concerns on their fitness to practice.<sup>6</sup>

The initial dip in complaints was followed by a gradual increase due to poor communication; suspended visiting; nosocomial COVID-19 infections; inadequate care due to staff shortages caused by sickness and isolation; frequent last-minute cancellations of procedures; and waning sympathy. The latest report from the GMC revealed that two-thirds (65%) of doctors have struggled to provide a sufficient level of care to patients due to high workload and burnout.<sup>7</sup>

A survey involving primary care clinicians revealed that two-thirds feared facing a complaint and more than a third had already received a complaint related to the pandemic.<sup>8</sup> The commonest reasons quoted were increased waiting times, delays in accessing tests, poor communication and online consultation. It is likely that complaints would continue to increase unless we find an effective way of dealing with the effects of the pandemic. ■

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## COVID-19 pneumonia as a risk factor for recurrent pneumothorax

DOI: 10.7861/clinmed.Let.22.2.3

Editor – The risk factors for primary spontaneous pneumothorax (PSP) and for dystrophic severity score (DSS) now need to include COVID-19-related pneumonia and COVID-19-related pneumatocele, respectively.<sup>1–4</sup>

The following case reports form the basis for inclusion of those two parameters.

### Ipsilateral recurrent spontaneous pneumothorax in a patient previously on mechanical ventilation<sup>2</sup>

In this report, a patient previously on a mechanical ventilator for severe COVID-19-related pneumonia experienced two separate episodes of right-sided PSP, 19 days apart. The first episode occurred 28 days post-discharge, and that was 63 days after the diagnosis of COVID-19-related pneumonia. The patient was finally managed by parietal pleurectomy and mechanical abrasion.

### Bilateral recurrent spontaneous pneumothorax in a patient previously on mechanical ventilation<sup>3</sup>

In this report, a patient with COVID-19-related pneumonia presented with cough, breathlessness and diabetic ketoacidosis. Mechanical ventilation was initiated on day 12. While on the ventilator, the patient experienced two separate episodes of right-sided pneumothorax, one of which occurred while an intercostal drain (ICD) was *in situ*. The patient later experienced two separate episodes of left-sided spontaneous pneumothorax, the first one during mechanical ventilation, and the second one while off the ventilator. The patient was finally managed by pleurodesis.

### Recurrent left-sided spontaneous pneumothorax in a patient with bilateral pneumatoceles<sup>4</sup>

In this report, a patient with COVID-19-related pneumonia presented with breathlessness, cough and fever. Mechanical ventilation was initiated on day 1. On day 27, chest X-ray revealed two pneumatoceles in the right lung. On day 28, the patient developed a left-sided spontaneous pneumothorax complicated by bronchopleural fistula. An intercostal drain was inserted. On day 31, computed tomography showed a new right-sided pneumatocele and also showed pneumomediastinum. On day 54, the day the patient was weaned off the ventilator, a pneumatocele was noted in the left lung. While off the ventilator, the patient subsequently developed another left-sided pneumothorax.

## Comment

These three case reports show that COVID 19-related pneumonia is not only associated with PSP and pneumomediastinum, but it is also a risk factor for recurrent PSP and for PSP-associated pneumatocele.<sup>2–5</sup> ■

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## Optimisation of strategies for management of heart failure with preserved ejection fraction

DOI: 10.7861/clinmed.Let.22.2.4

Editor – The review of empagliflozin for patients with heart failure and preserved ejection fraction (HFpEF) signals an important recognition that the management of HFpEF required a fundamentally different approach from the management of heart failure with reduced ejection fraction (HFrEF).<sup>1</sup> The key feature of HFpEF is that it responds best to preventive strategies that mitigate the risk of incident acute decompensated heart failure (ADHF), thereby significantly reducing rates of subsequent hospitalisation for ADHF rather than modifying the subsequent evolution of the natural history (including mortality risk) of that syndrome.

This effect was seen most strikingly in SPRINT, where intensive systolic blood pressure reduction (target systolic blood pressure <120 mmHg) resulted in a significant ( $p=0.003$ ) reduction in incident ADHF to the same extent in subjects with HFpEF and counterparts with HFrEF.<sup>2</sup> By analogy, in Zinman *et al*, among subjects at high risk of cardiovascular events, empagliflozin generated a significant ( $p=0.002$ ) reduction in risk of hospitalisations for incident ADHF, although, in the latter context, no documentation was made of the left ventricular ejection fraction subtypes.<sup>3</sup>

In the context of hypertension-related HFpEF, the operative factor for the efficacy of intensive systolic blood pressure control might be a mitigation of the risk of myocardial fibrosis, given the fact that in the animal model of hypertension, myocardial stiffness is determined by ventricular fibrosis.<sup>4</sup> In the context of use of sodium-glucose cotransporter-2 inhibitor therapy, mitigation of myocardial inflammation and, hence, myocardial fibrosis might be the operative factor for drug efficacy, given emerging evidence of the anti-inflammatory actions of this drug class.<sup>5–7</sup> Intensive blood pressure control also mitigates the risk of incident atrial fibrillation (AF), arguably by mitigating the risk of myocardial (including atrial) fibrosis.<sup>8</sup> Diabetes, in turn, is also a risk factor for incident AF, arguably as a consequence of the fact that it is a proinflammatory disorder.<sup>9,10</sup> Among patients with AF, modifiable risk factors for subsequent incident ADHF include both hypertension and diabetes.<sup>11</sup>

Accordingly, future management of HFpEF should optimise mitigation of risk of incident ADHF and risk of incident AF. ■

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## The significance of the gut microbiome in post-COVID-19 gastrointestinal symptoms

DOI: 10.7861/clinmed.Let.22.2.5

Editor – I read with interest the article by Cooney and colleagues in which 43.8% of the patients studied reported new-onset gastrointestinal (GI) symptoms in the 6 months after their acute COVID-19 illness and the authors suggest the possible existence of a post-COVID-19 irritable bowel syndrome (IBS).<sup>1</sup> The authors discuss the presence of the angiotensin converting enzyme 2 (ACE-2) receptor throughout the GI tract, which serves as the SARS-CoV-2 receptor, as an important potential factor. However, the potential relevance of gut microbiome disturbance in patients with COVID-19 was not discussed.