Combined COVID-19 and influenza infection: an imminent 'double whammy' ahead?

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As the winter of 2022–23 approaches, concern is already developing about the prospect of a dual co-infection with simultaneous SARS-CoV-2 (COVID-19/Omicron) and influenza A (currently H3N2). Furthermore, as a result of essential measures put in place over the last couple of years to mitigate risk of transmitting COVID infection, the incidence of seasonal influenza has been substantially less than in previous years, raising the potential probability of a more susceptible population with a lessened natural immunity to influenza infection. Indeed, present reports from Australia, inevitably the prelude to later western experience, indicate a rapid rise in influenza A notifications, a challenge reinforced by declining uptake of seasonal influenza vaccine both in Australia and the UK.[1]

Influenza and COVID-19 in synergy

It is evident that significant infections with COVID-19/Omicron are still occurring, despite a highly promoted vaccination programme, prompting the UK Health Security Agency (UKHSA) to urge that everyone eligible for flu vaccine and a COVID-19 booster should avail themselves of dual vaccination in anticipation of what could be a difficult winter ahead with a wide variety of circulating respiratory viruses.[2] The possibility of co-infection with SARS-CoV-2 and influenza is certainly a major concern in terms of potential impact on morbidity, mortality and health-service demand, with national surveillance data (England) indicating increased risk of severe disease and mortality beyond the additive effect of the two viruses acting independently,[3] suggesting a possible synergistic effect between the two viruses. Between 20 January 2020 to 25 April 2020, 43.1% of the cases with co-infection died compared with 26.9% of those who tested positive only for SARS-CoV-2.

On a more favourable perspective, this study[3] observed that the risk of testing positive for SARS-CoV-2 was significantly (58%) lower among influenza positive cases, propounding pathogenic competition between the two viruses, with the suggestion that influenza infection itself was associated with a lower risk of SARS-CoV-2 infection. Raising even more interest, it would seem that influenza vaccination may offer a measure of further protection against SARS-CoV-2, possibly by stimulating additional short-term, non-specific immune response.[4] So the present UK government strategy of offering simultaneous SARS-CoV-2 and influenza vaccinations would seem evidence based and eminently sensible, particularly for those considered vulnerable and at greater risk, including people with diabetes.

Parallels with 2009 'Swine Flu'

The inter-relationship between diabetes and SARS-CoV-2 infection is now well established, both in terms of the susceptibility of those with diabetes to infection,[5] and the adverse consequences of such, including a substantial excess burden of diabetes during the immediate post-acute phase of the disease,[6] as well as an additional risk of actually developing new-onset diabetes.[7] These recent outcome observations in respect of COVID-19 in a way parallel concerns that were faced in 2009 with an emerging influenza (H1N1) pandemic, popularly known as 'Swine Flu'.[8] Similarly as now, reports from the southern hemisphere described influenza associated increase in morbidity and mortality with up to 25% of hospitalised patients needing intensive care, particularly in more vulnerable groups of the population. Predicated on diabetes as an identified priority risk, the rationale favouring influenza vaccination for people with diabetes was examined at the time,[9] with evidence that the anticipated six-fold increased risk of hospitalisation with combined diabetes and influenza infection could be reduced by two thirds.[10] Contingency planning and diabetes management guidelines were duly prepared, including relevant 'sick day rules' and awareness of the possibility of a five- to 10-fold increase in new case insulin demand.[11] In the event, the swine flu outbreak of 2009 proved limited and its predicted severity did not materialise on that occasion. However, being prepared for a future pandemic infection has been consequently well recognised, underpinning the recent recommendations from the UK National COVID Response Group and the Association of British Clinical Diabetologists (ABCD) on the management of patients with diabetes during this present COVID-19 pandemic,[12,13] specifically supporting the essential need for dedicated diabetes service provision.

Influenza vaccination and COVID-19 booster strongly recommended

SARS-CoV-2 infection is still prevalent and likely to remain so, probably on a recurring periodic basis, in a way very similar to seasonal influenza outbreaks. Conditions predisposing to infection, particularly in winter, are shared in common between these two respiratory viruses, such that anticipation of a dual, 'double whammy' outcome is a real possibility, yet to be fully encountered. Moreover, in the United States a resurgence of respiratory syncytial virus (RSV) infection, particularly in the paediatric population, has led to the prediction of an even more alarming tripledemic scenario.[14] The greater adverse consequences of

simultaneous acute co-infections are undoubtedly causing concern for what may lie ahead both for individuals at risk, as well as for health services struggling to cope with potentially overwhelming demand. Getting vaccinated for both influenza and COVID-19 is clearly the right recommendation, with the bonus knowledge that the influenza vaccine may well provide added protection against COVID. For a variety of reasons,[15] vaccine hesitancy among adults with diabetes has from time to time been reported for both influenza[16] and COVID-19,[17] emphasising continual educational needs and a reassurance that getting properly immunised when advised, not only reduces the immediate likelihood of severe infective illness, but also serves to protect future health and crucially diabetes well-being.

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Declaration of interests

There are no conflicts of interest declared.

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