Duets beyond music: tackling the flu, seasonal and pandemic vaccines

One of the most frequent questions shaping the current influenza season revolves around understanding the benefits and risks of combined vaccination for the seasonal and the pandemic strains. Influenza viruses stand out as one of the most important pathogens in terms of the morbidity and mortality they caused throughout history. Annually, seasonal influenza claims over 36,000 deaths in the United States and approximately 500,000 deaths worldwide (1,2). In addition, the segmented organisation of the viral genome facilitates the exchange of genetic material between strains co-infecting the same host. This enables the emergence of re-assortant viruses with pandemic potential, a phenomenon that in recent history has recurred with a certain periodicity, which became the topic of many speculations and predictions. Most recently, on 11 June 2009, the World Health Organization declared the first influenza pandemic of the 21st century, caused by a re-assortant H1N1v virus with genomic regions of human, avian and swine origins. As of 27 December 2009, infections with this virus were reported in 208 countries and claimed over 12,000 lives worldwide (3,4).

Specific population groups are at risk for seasonal and pandemic influenza. Seasonal flu mostly affects very young children and adults 65 years and older, and poses a high risk for pregnant women and individuals with immune deficiency or underlying health conditions. Pandemic flu, on the other hand, frequently affects young, healthy adults, and, in addition, pregnant women and individuals with certain underlying medical conditions are at particularly high risk (2,5–7). Thus, there is a certain overlap between the high-risk groups for seasonal and pandemic flu, and several subpopulations would benefit from receiving both vaccines. Nevertheless, the potential benefits and adverse effects that accompany the concomitant administration of both vaccines are insufficiently known.

A timely study by Gasparini et al. (8) comes to fill this significant gap. In a phase II open label study that enrolled healthy adults (18–60 years) and elderly (> 61 years) participants, the authors examined the safety and immunogenicity of Focetria® (Novartis Vaccines, Siena, Italy), the Novartis MF59-adjuvanted H1N1v pandemic vaccine, when administered approximately 3 months after the plain (Agripal®; Novartis Vaccines) or MF59-adjuvanted (Fluad®; Novartis Vaccines) trivalent seasonal influenza vaccine. The authors reveal that one dose of the MF59-adjuvanted H1N1v pandemic vaccine was immunogenic in adult and elderly participants, and prior seasonal vaccination, approximately 3 months earlier, did not interfere with the response to the pandemic vaccine. In adults, concomitant vaccination was well tolerated and did not affect immunogenicity of either vaccine. Interestingly, elderly subjects previously vaccinated with an MF59-adjuvanted seasonal vaccine exhibited a consistently lower rate of local and systemic adverse effects as compared with individuals receiving the plain seasonal vaccine or those not vaccinated at all, but larger studies, with increased statistical power, will be required to confirm and further explore this finding.

The possibility to achieve protection by concomitant or consecutive vaccination against seasonal and pandemic flu is of considerable importance when drafting immunisation guidelines. Furthermore, Gasparini et al. establish an important framework for exploring further aspects pertinent to combined seasonal and pandemic influenza vaccines. Larger groups of participants and longer timeframes will be required to investigate the full range of potential adverse effects and there is an urgent need to conduct clinical trials that enrol specific high-risk populations, such as immunosuppressed individuals. Influenza is associated with higher morbidity and mortality in transplant recipients, and increases the risk of organ rejection, considerations that make vaccination a top priority. However, the immune dysfunction may compromise vaccine immunogenicity and effectiveness – for example, a blunted humoral response to vaccination was reported among systemic lupus erythematosus patients, and strain-specific differences in vaccine efficiency were found by several studies that examined solid transplant recipients (9–11).

Furthermore, future efforts need to focus on combination influenza vaccines in pregnant women, a segment of the population that is particularly vulnerable to infection, as demonstrated by previous seasonal and pandemic outbreaks. A study that examined over 4300 pregnant women for 19 consecutive years, between 1974 and 1993, found a 3–4 times higher likelihood of hospitalisation for acute cardio-
pulmonary conditions during the third trimester as compared with postpartum women (12). During the 1918 H1N1 pandemic, a 27% overall mortality was recorded among 1350 pregnant women, and between 15 April and 16 June 2009, at the beginning of the current H1N1v pandemic, 6 of the 45 deaths (13%) in the United States occurred among previously healthy pregnant women (13,14). In addition, some studies reported that pregnancy-related complications, such as miscarriage and preterm birth, occur more frequently during influenza outbreaks (15,16). These are a few of the reasons why pregnant women deserve special considerations with respect to influenza outbreaks and vaccinations.

As the first influenza pandemic of the 21st century is still unfolding, the informative study by Gasparini et al. opens a new and important chapter in public health preparedness. Recent decades have increasingly demonstrated that we live in an inter-pandemic era, and the only incertitude surrounding the next re-assortant influenza virus, and the next pandemic, has become not if, but when. In this context, it will be crucial not only to better understand combined seasonal and pandemic vaccines but, most importantly, to explore their use in conjunction with antiviral therapy and social distancing measures. Integrating each of these interventions during an outbreak and understanding their benefits and limitations should represent a global public health priority for the years to come.

Disclosures

Nothing to disclose.

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A stepwise approach to the treatment of the enlarged prostate

We congratulate the authors on attempting to produce a simple and practical approach to identification and evaluation of the treatment of lower urinary tract symptoms resulting from an enlarged obstructive prostate (1). Clearly, lower urinary tract symptoms can develop irrespective of whether there is an enlarged prostate or not. The diagnosis of an enlarged prostate is clearly rather subjective and is dependent upon evaluation at a rectal examination, which is a rather ‘individualised’ assessment. Clinically diagnosing an enlarged prostate will depend upon the expertise and experience of the clinician.

Editorials

Achieving protection by concomitant and consecutive vaccination is of considerable importance