The resurgence of the respiratory syncytial virus

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After three years of the Covid-19 pandemic, we almost forget that other respiratory viruses exist and can also have very significant impacts on health. This is particularly the case with the syncytial virus, which currently affects a large number of people, even more than the flu.

Respiratory syncytial virus (RSV) is a very common RNA virus responsible for respiratory tract infections. Its name refers to the amazing clumps of cells (syncytia) that form as a result of the fusion of virus-infected lung cells, through a very unusual biochemical mechanism of action that places it in a class of its own when it comes to viral infections.

RSV is particularly prevalent in young children, where it is the most common cause of bronchiolitis (inflammation of the small bronchial tubes that can obstruct the passage of air).

Although almost all children are infected during the first two years of life, immunity against the virus remains incomplete and reinfections are frequent, both in older children and in adults. This risk of reinfection is all the higher since the RSV virus is very contagious and can be transmitted quickly from one person to another, both by air (droplets of secretions produced during coughing or sneezing or aerosols produced by breathing or speaking) than by contact (hands, contaminated objects).

ADULTS ARE ALSO AFFECTED

In adults, RSV infection most often causes symptoms very similar to the common cold (runny nose, sore throat and dry cough) and the virus usually goes away on its own after one to two weeks, without major impact on health, despite a significant period of respiratory discomfort.

However, several recent studies have shown that RSV can cause severe respiratory infections in certain categories of people, in particular the elderly and those with cardiorespiratory diseases, and represents an important cause of mortality in this population (1).

INCREASE IN INFARCTION

It should also be mentioned that lung infections can also have negative effects on the function of other organs, especially the heart.

For example, a Canadian study recently reported that people who tested positive for any of the various respiratory viruses had a much higher risk of being hospitalized for an acute heart attack within seven days of diagnosis.

This increased risk is particularly high for influenza B virus (10-fold), but is also observed for RSV infections (4-fold increase in risk) (2). It is likely that the inflammation caused by the lung infection "contaminates" the blood, which is oxygenated in the lungs and subsequently exposes the heart to high levels of inflammatory molecules that can damage the vessel walls and promote rupture of atherosclerotic plaques.

RSV vaccine development efforts have yielded a large number of candidates that have been developed over the past few years and some of them look very promising.

For example, a recent study reports that the anti-RSV vaccine developed by the company Pfizer reduces the risk of infection by the virus by 90%, without significant side effects (3).

Moderna also has this virus in its sights, for the development of an RNA vaccine.

This is another positive spin-off from the scientific knowledge of new vaccines acquired during the Covid-19 pandemic.

(1) Borchers AT et al. Respiratory syncytial virus-a comprehensive review. Clin. Rev. Allergy Immunol. 2013 ; 45 : 331-379.

(2) Kwong JC et al. Acute myocardial infarction after laboratory-confirmed influenza infection. N. Engl. J. Med. 2018 ; 378 : 345-353.

(3) Schmoele-Thoma B et al. Vaccine efficacy in adults in a respiratory syncytial virus challenge study. N. Engl. J. Med. 2022 ; 386 : 2377-2386.

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