

Prevention of respiratory tract infections and asthmatic wheezing in Danish Children

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Background

Respiratory tract infections (RTI's) are the most common pediatric diseases worldwide. Two important contributors in this context are influenza virus and respiratory syncytial virus (RSV) who thrive in Danish daycare facilities every season causing substantial morbidity. Previous studies show that children in public daycare have twice as many sick days as children cared for at home. Moreover, it is well established that children below the age of 2 are especially susceptible to respiratory illness caused by viral RTI's. It is therefore concerning that Denmark, due to a society structure with two working parents per family, holds the European record in daycare attendance for 0-2-year-olds. Thus, if RTI morbidity is to be reduced, prevention efforts are essential.

Influenza virus and RSV are prone to cause high antibiotic consumption and asthmatic wheezing. Regarding influenza virus, previous studies suggest a protective impact of the Fluenz Tetra vaccine on antibiotic consumption. However, the full impact of the vaccine on both antibiotic consumption and anti-asthmatic treatment has not been studied. RSV induces the most severe asthmatic symptoms in its primary infection compared to reinfections, but it remains unclear if children produce the same degree of asthmatic wheezing if they are not exposed to RSV during their first year of life. Due to the COVID-19 pandemic causing historically low incidence in RSV and due to the subsequent introduction of Fluenz Tetra to Danish children, we are now able to examine these issues further.

Aims

We aim to describe if the Fluenz Tetra vaccine offered to 2-6-year-old children in Denmark in 2021 had a preventive impact on the consumption of antibiotics and anti-asthmatic treatment. Further, we study the effect of RSV naivety of the birth cohort of 2020 based on their consumption of anti-asthmatic treatment throughout early childhood.

Methods

Registry-based cohort studies. Study 1 includes all Danish 2-6-year-olds receiving Fluenz Tetra between Oct 21 and Jan 22 and a matched unvaccinated control-group. Study 2 includes the entire birth cohort of 2020.

Perspectives

This project contributes with important knowledge on Fluenz Tetra's protective impact on RTI's and asthmatic wheezing in children. Furthermore, it provides missing knowledge on the benefits of postponing a child's primary RSV infection on its tendency to asthmatic wheezing throughout early childhood.

