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THE EFFECT OF VARICELLA VACCINATION ON THE INCIDENCE OF HERPES ZOSTER IN MANITOBA

Bhreach Phipps, University of Manitoba; **Guillaume Poliquin**, University of Manitoba, National Microbiology Laboratory; **Paul Van Caesele**, University of Manitoba, Medical Director, Cadham Provincial Laboratory

Background:

Varicella zoster (VZV) is the virus that is responsible for chickenpox. After infection, the virus remains latent in the neural ganglia, potentially becoming reactivated as Herpes Zoster (HZ).

Manitoba implemented a two-dose VZV immunization schedule in January 2008.

The interplay between VZV and HZ is complex. Latency of HZ is predominantly controlled by VZV-specific cell mediated immunity. Theoretically, VZV vaccination could potentially result in an increase in HZ rates, by decreasing the amount of exogenous boosting that occurs through VZV exposure.

Objective:

We hypothesize that there is an increase in incidence of herpes zoster in Manitoba following VZV vaccination, and that HZ is occurring earlier in life.

Methods:

The Manitoba Health database was queried for individuals diagnosed with HZ in Manitoba from 1996-2016. Rates of HZ relative to the introduction of VZV vaccination was analyzed using interrupted time-series analysis.

Results:

Those with a diagnosis of HZ in Manitoba between January 1996-December 2016 were included in our study. Our analysis was divided into age groups: 0-9, 10-19, 20-34, 35-49, 50-64, 65-79, and 80+. Those with concomitant immune suppression were excluded.

Our analysis shows a significant ($P < 0.001$) absolute effect of 0.109 increase in incidence per year of HZ post VZV vaccination in the 35-49 age group (SE 0.034; 95% CI -0.041 to 0.177). It also shows a significant ($P < 0.001$) increase in post-vaccination incidence rates of HZ per year in the 20-34, 35-49, 50-64 and 65-79 age groups, all which are higher than the pre-intervention incidence rates.

Conclusion:

We have observed that there is an increase of HZ incidence post-VZV vaccination above the forecasted pre-VZV vaccination trend. HZ is occurring at a higher incidence. These results may impact the vaccination schedule, in terms of identifying a potential need for varicella boosters and/or earlier herpes zoster vaccination.