Adult exposure to chickenpox linked to lower risk of shingles, but does not provide full protection

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Adults who are exposed to a child with chickenpox (varicella) in the home are around 30% less likely to develop shingles (herpes zoster) over 20 years, finds a study in *The BMJ* today.

The results support the theory that re-exposure to the herpes zoster virus in adulthood (after chickenpox infection as a child), boosts immunity to shingles, but does not provide complete protection.

In light of these findings, the researchers call for a review of the UK's childhood varicella vaccination policy, which assumes complete immunity for between 2 and 20 years.

Primary infection with varicella zoster virus causes chickenpox, typically in children. After this initial infection, the virus remains in the body as a dormant infection, and reactivation, often decades later, causes shingles.

The theory that re-exposure to the varicella zoster virus in adulthood boosts immunity to shingles (known as "exogenous boosting") has gained widespread support. As such, the UK and many other countries don't offer routine childhood varicella vaccination as this would remove circulating virus in the community.

But more recent data suggest that boosting may not be long lasting.

So a team of UK researchers set out to estimate the risk of herpes zoster after exposure to a household member with varicella.

Their findings are based on UK general practice and hospital records for 9,604 adults (18 years and over; 69% women) diagnosed with herpes zoster between 1997 and 2018 who lived with a child (18 or under) with varicella during an average 15-year observation period.

Average age at zoster diagnosis was 41 years and at first known exposure to varicella was 38 years.

After adjusting for age, calendar time, and season, strong evidence suggested that in the two years after household exposure to a child with varicella, adults were 33% less likely to develop zoster compared with baseline (unexposed) time.

In the 10 to 20 years after exposure, this protective effect waned slightly but adults were still 27% less likely to develop zoster compared with baseline time. A stronger boosting effect was seen among men than among women after exposure to varicella.

This is an observational study, so can't establish cause, and the researchers point out that varicella may be under-recorded as it does not always require a visit to the doctor. Nevertheless they used a large, nationally representative sample and were able to adjust for potentially influential factors.

"These findings cannot be used to justify for or against specific vaccination schedules," write the authors. "They do, however, suggest that previous mathematical models, estimating the effect of exogenous boosting in childhood varicella vaccination policy in the UK, that assume complete immunity for between two and 20 years may need revisiting."

More information: Risk of herpes zoster after exposure to a varicella case: self-controlled case series study using UK electronic healthcare data exploring the exogenous boosting hypothesis, *BMJ* (2020). DOI: 10.1136/bmj.l6987