Human Papilloma Virus Immunization in Adolescent and Young Adults: A Cohort Study to Illustrate What Events Might be Mistaken for Adverse Reactions

Siegrist, Claire-Anne; Lewis, Edwin M.; Eskola, Juhani; Evans, Stephen J. W.; Black, Steven B. **Pediatric Infectious Disease Journal**. 26(11):979-984, November 2007.doi: 10.1097/INF.0b013e318149dfea

Abstract:

Background: The large-scale implementation of human papilloma virus (HPV) immunization will be followed by cases of autoimmune diseases occurring in temporal association with immunizations. To anticipate events that might be mistakenly assumed to be caused by immunization, their prevalence was monitored before vaccine introduction.

Method: Cohort study carried out within a database of female adolescents (n = 214,896) and young adults (n = 221,472) followed in the pre-HPV vaccine era (2005), computing rates of emergency consultations, hospitalizations and outpatient consultations, and estimation of risks of coincident associations.

Results: Immune-mediated conditions were a frequent cause (10.3%) of emergency room consultation by adolescent girls. Nonallergic immune-mediated conditions affected 86 per 100,000, diabetes ranking first. In 2005, 53 per 100,000 adolescents and 389 per 100,000 women were hospitalized for diseases of presumed autoimmune origin, thyroiditis being the most frequent diagnosis. If HPV immunization had been used with 80% coverage, 3 per 100,000 adolescents would have required emergency care for asthma/allergy within 24 hours and 2 per 100,000 for diabetes within 1 week of an injection. The risks of hospitalization in temporal association with immunization are 4 times higher for thyroiditis than for multiple sclerosis or Guillain-Barre's syndrome, and more than 20 times higher in young women than in adolescents.

Conclusion: The distinction between HPV vaccine-caused adverse reactions and events only observed by chance in temporal association is difficult. The prior use of population-based data allows for identification of issues of potential concern, for monitoring the impact of large-scale interventions and for addressing rapidly vaccine-safety issues that may compromise vaccine programs.