Original article

Reports of Postural Orthostatic Tachycardia Syndrome After Human Papillomavirus Vaccination in the Vaccine Adverse Event Reporting System


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ABSTRACT

Purpose: Human papillomavirus (HPV) vaccination prevents infections with HPV strains that cause certain cancers. Reports of postural orthostatic tachycardia syndrome (POTS) following HPV vaccination have raised safety concerns. We reviewed POTS reports submitted to the Vaccine Adverse Event Reporting System (VAERS).

Methods: We searched the VAERS database for reports of POTS following any type of HPV vaccination (bivalent, quadrivalent, or nonavalent) from June 2006 to August 2015. We reviewed reports and applied established POTS diagnostic criteria. We calculated unadjusted POTS case reporting rates based on HPV vaccine doses distributed and conducted empirical Bayesian data mining to screen for disproportional reporting of POTS following HPV vaccination.

Results: Among 40,735 VAERS reports following HPV vaccination, we identified 29 POTS reports that fully met diagnostic criteria. Of these, 27 (93.1%) were in females and mean age was 14 years (range 12–32). Median time from vaccination to start of symptoms was 43 days (range 0–407); most (18, 75.0%) had onset between 0 and 90 days. Symptoms frequently reported concomitantly included headache (22, 75.9%) and dizziness (21, 72.4%). Twenty (68.9%) reports documented a history of pre-existing medical conditions, of which chronic fatigue (5, 17.2%), asthma (4, 13.8%), and chronic headache (3, 10.3%) were most common. Approximately one POTS case is reported for every 6.5 million HPV vaccine doses distributed in the United States. No empirical Bayesian data mining safety signals for POTS and HPV vaccination were detected.

IMPLICATIONS AND CONTRIBUTION

Human papillomavirus (HPV) vaccines prevent infection with certain oncogenic HPV types. A rare condition called postural orthostatic tachycardia syndrome (POTS) has emerged as a vaccine safety concern among the public, despite limited epidemiologic evidence. This review found no evidence to suggest a safety problem with POTS following HPV vaccination.

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Conclusions: POTS is rarely reported following HPV vaccination. Our review did not detect any unusual or unexpected reporting patterns that would suggest a safety problem.

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