Vaccinating Men for HPV: New Strategy for Preventing Cervical Cancer In Women?

Several clinical trials are testing whether human papillomavirus (HPV) vaccines can ultimately be used to eradicate cervical cancer. Two of the more than 30 sexually transmitted HPV types, HPV-16 and HPV-18, cause more than 70% of the disease that kills 250,000 women worldwide each year.

But some researchers have focused their attention on HPV infection in men. These scientists consider the prevention of HPV infection in men as another way to eliminate cervical cancer in women and to reduce rates of anal cancer and genital warts in men.

Anna Giuliano, Ph.D., of the H. Lee Moffitt Cancer Center & Research Institute in Tampa, Fla., is leading a 4-year study that is exploring the nature of HPV infection in men. Study investigators will record rates of new infections with 38 anogenital HPV types in 3,000 men ages 18–44 from Brazil, Mexico, and the United States every 6 months.

“There is little information on incidence and transmission of HPV in men,” she said. “The study is designed to increase our understanding of the natural history of HPV infection in men.” She decided to include Latin American men largely because twice as many Hispanic women develop invasive cervical cancer compared with Caucasian women in the United States. (See Stat Bite, p. 630.) In addition, the incidence rates of cervical cancer in Brazil and Mexico are nearly triple the rate in the United States.

Giuliano’s study will further determine how long HPV infections persist and why. Studying HPV infections in women revealed that infection is entirely determined by sexual activity and that its persistence may relate to tobacco use and age, Giuliano said. Her study will investigate whether similar or entirely
different factors affect the progression of infection in men—“what factors make it biologically conducive for the virus to persist,” she said.

Eliav Barr, M.D., of Merck Research Laboratories in West Point, Pa., is leading a study that is testing the efficacy of an HPV vaccine for HPV types 16, 18, 6, and 11 in young men. In addition to their role in cervical cancer, HPV-16 and HPV-18 also cause at least 70% of anal cancers and 70% of pre-cancerous lesions on the penis. Even though penile cancer and anal cancer are rare, the incidence of anal cancer has more than doubled among gay men in the last 30 years.

“The whole story of anal cancer in gay men is very similar to the story of cervical cancer in women,” Barr said. “The tissue involved, the architecture is actually not terribly different between the two groups because of HPV’s affinity to infect this particular area.”

In addition, HPV-6 and HPV-11 cause more than 90% of genital warts, benign but extremely bothersome lesions that mostly affect young men. Genital warts can be difficult to eliminate and often require repeated visits to the doctor’s office. “There are a lot of dollars expended in the U.S. every year in treating individuals for genital warts; it’s inconvenient, frustrating, annoying, and it generates a large expense,” said Daron Ferris, M.D., of the Medical College of Georgia.

The Merck vaccine study will run for the next 3 years and will include sexually active men ages 16–23 who will be subdivided into heterosexual and homosexual groups. By subdividing, Barr hopes to determine potential differences between the two groups. “The distribution of genital warts may be different between men who have sex with men and heterosexual men,” said Barr. “Men who have sex with men are at risk for anal dysplasia and cancer, whereas the risk of that among heterosexuals is quite a bit lower.”

For heterosexual men, the main benefits of an HPV vaccine will be the prevention of genital warts and, potentially, cervical cancer in women. Barr compares vaccinating men to prevent cervical cancer to “targeting the mosquitoes in trying to prevent malaria.”

Barr said he thinks that, if the vaccine proves successful, the administration of HPV vaccines could eventually become a requirement for boys and girls in middle school or high school as a potential way to reduce HPV infection.

Two previous Merck studies in 9- to 15-year-old boys established the vaccine’s safety and efficacy in stimulating antibodies.

“When you want to reduce disease in a population, you want to immunize as many people as you can,” said Darron Brown, M.D., of the School of Medicine at Indiana University in Indianapolis. “If you can immunize a large percentage in men and prevent them from infecting women you can reduce the disease in women.”

—Nadja Geipert