Jennifer S. Smith - Key Research Accomplishments and Discoveries

Dr. Smith was the senior author on a study reporting that persistent infection with human papillomavirus (HPV) could be a useful clinical marker for increased risk of cervical cancer. This study reviewed 41 existing studies including over 22,500 women to systemically evaluate the association between HPV persistence and high-grade lesions or cervical cancer.

We found that a persistent HPV infection of six months to one year was consistently associated with a women's increased risk of high-grade cervical lesions or cervical cancer. The next step will be to develop a consensus definition of HPV persistence that can then usefully inform clinical practice for future cervical cancer screening programs. In the future, measuring persistence of HPV infection may optimize screening for cervical cancer by increasing sensitivity while maintaining comparable specificity to Pap smear testing.

The study is published in American Journal of Epidemiology.

Dr. Smith was the first author of a study published in the International Journal of Cancer which showed the variety of human papilloma viruses that cause invasive cervical cancer cases worldwide are largely consistent across continents. This finding means that prophylactic vaccines currently available against these two most prevalent types of human papillomavirus (HPV) – which can cause cervical cancer – could prevent about 70 percent of invasive cervical cancer (ICC) cases around the world, the researchers found.

Our data confirm that HPV types 16 and 18 are the most common in invasive cancer and strengthen the data on the estimated number of cases that could be prevented with vaccination. As a result of this analysis, we now have additional information about other high-risk HPV types that cause invasive cancer to target for future HPV vaccine development.

Smith and colleagues reported that ICC HPV16 was the most common, and HPV18 the second most-common type in all continents. Combined HPV 16/18 prevalence among ICC cases was slightly higher in Europe, North America and Australia, from 74 to 77 percent, than in Africa, Asia and South/Central America, where the rates were between 65 and 70 percent. Data on HPV-typed ICC and high-grade lesions were particularly scarce from large regions of Africa and Central Asia.

Gardasil, a Merck & Co. vaccine approved last year by the Food and Drug Administration, protects against HPV 16 and 18. A similar vaccine developed by GlaxoSmithKline also protects against these types of HPV.

While having these vaccines represents a significant step forward, HPV-vaccinated women will need to receive clear messages that they still need to obtain their recommended Pap smears for cervical cancer prevention, given that HPV vaccines will not prevent all invasive cancer or high-grade lesions.

The results were published in the Aug. 1, 2007, issue of the International Journal of Cancer.