Acceptance of HPV Vaccine Deemed Too Low

BY KATE JOHNSON

EXPERT ANALYSIS FROM THE ANNUAL MEETING OF THE SOCIETY OF OBSTETRICIANS AND GYNAECOLOGISTS OF CANADA

MONTREAL — Uptake of the human papillomavirus vaccination is too slow, say some experts, while others still question whether enough is known about the risk-benefit ratio to deem the vaccination truly necessary.

In an industry-sponsored symposium held during the meeting, Dr. William Fisher, a consultant to Merck, strongly urged physicians to make HPV vaccination a routine part of their practice.

There are about 100 strains of HPV virus, with 15 considered oncogenic. HPV strains 16 and 18 are responsible for about 70% of cervical cancer, while strains 6 and 11 are responsible for genital warts. Merck's Gardasil vaccine targets all four strains, while Cervarix (GlaxoSmithKline PLC) targets the oncogenic strains 16 and 18.

"HPV vaccine would seem to be a very reasonable form of protection, for both men and women, who may be sexually active in an environment characterized by a very high level of HPV," as the infection may have serious health consequences for the individual and his or her partner, said Dr. Fisher, a professor in the departments of psychology and obstetrics and gynecology at the University of Western Ontario, London.

To illustrate the prevalence of HPV infection, Dr. Fisher noted a 25% rate of infection with high-risk oncogenic strains of HPV among Canadian teenage girls, aged 15-19 years, in a low-risk family practice setting who were negative for HPV the previous year (CMAJ 2003;168:421-5).

Similarly, among a group of 621 university-age women tested every 6 months for 2 years, the rate of newly acquired high- and low-risk HPV strains was 13% at 1 year, and 29% and 24%, respectively, at 2 years (Cancer Epidemiol. Biomarkers Prev. 2003;12:485-90).

"We couldn't be talking more clearly about a sociosexual epidemic," he said. "This is a social disease on steroids," said Dr. Fisher, who is also a research affiliate at the Center for Health, Intervention, and Prevention at the University of Connecticut, in Storrs.

In a recent study involving young Canadian couples, HPV was present in 64% of new couples and the oncogenic HPV-16 strain was the most common strain found at baseline.

Concordance of strains was 41% at baseline and grew to 68% at 6 months, he said (Epidemiology 2010;21:31-7). "There's no doubt in new relationships that HPV is rapidly becoming part of the sociocultural landscape," Dr. Fisher said.

While there is a well-established link between high-risk HPV and gynecologic cancers, HPV-related head and neck cancers are "probably the newest sexually transmitted infections on the radar," he said.

A recent study shows that in Sweden the prevalence of oncogenic HPV strains in head and neck cancer biopsies has increased from 23% in the 1970s to 77% by 2005 (Int. J. Cancer 2009;125:362-6).

In addition, a study from this year shows that the risk of HPV-related head and neck cancer, while increased with six or more coital partners (odds ratio 1.25), more than triples with more than four oral-genital partners (OR 3.36). "Oral-genital sex is the new handshake, and it is actually likely that people have more oral-genital partners than coital partners," Dr. Fisher added.

Yet while Canadian and U.S. authorities recommend HPV vaccination in young girls and women, and school-based vaccination programs are offered across Canada, such recommendations have not resulted in mass vaccination, he said. A recent study suggests that only about one-third of American girls, aged 13-17 years, have been vaccinated (Am. J. Prev. Med. 2010;38:525-33).

Dr. Marie Plante, president of the Society of Gynecologic Oncologists of Canada, said that as a gynecologic oncologist she sees the downside of such low vaccination rates. "We treat women with cervical cancer. …I've got several of them in their 20s and early 30s and it ruins their lives, and they can't have children sometimes. So we see the frustrating part because it could have been prevented," said Dr. Plante, associate professor of obstetrics and gynecology, and chief of the gynecologic oncology division at Laval University in Quebec City. She estimates that about 50% of cervical cancer cases she sees are in women whose regular screening had failed to identify it.

"As much as I am very critical of the push from the companies [to market their vaccines], I will tell you that honestly I think the vaccine is safe," Dr. Plante continued. Is it necessary? "No, it is not necessary," she said. "It doesn't guarantee 100% protection. It's an option you have to reduce the chances that you develop precancerous cells. In most cases this will be treated quickly and won't take your life away." Importantly, the vaccine also reduces the potentially significant burden of genital warts, the experience of which is "amazingly negative"—it's "terrible and painful," she added.

Last year a prominent editorial and article in the JAMA questioned the medical arguments for vaccination, as well as the ethics of aggressive marketing campaigns from pharmaceutical companies (JAMA 2009;302:795-6, and 781-6).

"If the potential benefits are substantial, most individuals would be willing to accept the risks. But the net benefit of the HPV vaccine to women is uncertain. Even if persistently infected with HPV, a woman most likely will not develop cancer if she is regularly screened," wrote Dr. Charlotte Haug, editor-in-chief of the Journal of the Norwegian Medical Association.

In their article, Sheila Rothman, Ph.D., and David Rothman, Ph.D., of Columbia University, New York, noted that in 2006, Merck's Gardasil "was named the pharmaceutical 'brand of the year' for building a 'market out of thin air.' "

Alan Cassels, a drug policy researcher at the University of Victoria (B.C.), was critical. "It's not a slam dunk that if you get the HPV vaccine you'll be prevented from developing cancer," he said in an interview. He compared the vaccine to cholesterol-lowering drugs. "Yes, we can prove that a drug lowers cholesterol, but the question is whether it prevents heart attacks and strokes. So, while the HPV vaccine may prevent transmission of the virus, will that really result in [fewer] cancers? We won't know for 10 or 20 years down the road."

Given the uncertainty of benefit, or the duration of efficacy, Mr. Cassels cautioned that the risks of any intervention should be minimal, which is not the case with the HPV vaccine, he said.

Merck sponsored the symposium Dr. Fisher disclosed that he has been a consultant for Merck, Boehringer Ingelheim, and Bayer. Dr. Plante reported having no conflicts of interest. ■

Pandemic Flu Reassortment Could Pose New Threat

BY DENISE NAPOLI

FROM SCIENCE

Researchers are warning that the pandemic 2009 influenza (A)H1N1 strain has been quietly combining with other influenza strains among Hong Kong swine, and that further viral reassortment among global swine populations could once again cause a pandemic among humans, with unpredictable results.

"The 2009 pandemic, although mild and apparently contained at present, could undergo further reassortment in swine and gain virulence," wrote Dr. Dhanasekaran Vijaykrishna and associates at the State Key Laboratory of Emerging Infectious Diseases at the University of Hong Kong.

The investigators called for "surveillance in swine [that] is greatly heightened, and that all eight gene segments are genetically characterized so that such reassortment events are rapidly identified."

In their study, Dr. Vijaykrishna and colleagues looked at tracheal and nasal swab samples taken from swine at a Hong Kong slaughterhouse between June 11, 2009, and Feb. 4, 2010.

Samples were taken every 2 weeks on up to 252 swine per sampling occurrence, for a total of 4,101 samples of unique swine. Overall, H1N1 and H1N2 viruses were isolated from 32 samples (Science 2010;328:1529).

VITALS

Major Finding: At least one novel influenza strain was discovered among swine tested during the height of the flu pandemic; neither antibodies from pandemic flu vaccine nor natural infection conferred protection against the novel strain in vitro.

Data Source: Study of 4,101 nasal and tracheal swabs gathered from swine from a Hong Kong slaughterhouse between June 2009 and February 2010.

Disclosures: None was reported.

Pandemic flu viruses "isolated on the same sampling occasion were genetically identical, suggesting transmission of viruses occurred within swine herds," Dr. Vijaykrishna and associates said.

However, "viruses from different sampling dates were genetically distinct from each other and also from [2009 H1N1]–like swine viruses isolated in other countries, indicating multiple independent introductions of these viruses from humans to swine," the researchers said.

But the greatest concern comes from a January 2010 sampling where a novel reassortant was discovered; the new strain was named A/swine/Hong Kong/201/2010 (H1N1).

Dr. Vijaykrishna and colleagues determined that this novel strain—whose hemagglutinin gene most closely resembled European avian-based influenzas, and whose neuraminidase gene was likely derived from the 2009 swine-derived H1N1 strain—could be particularly contagious.

"Neither [the 2009 H1N1] vaccine nor natural infection reliably elicits cross-protective antibody to A/swine/Hong Kong/201/2010," the investigators wrote.

Further laboratory testing of the new strain revealed that while the virus was susceptible to oseltamivir, it was resistant to adamantanes such as amantadine or rimantadine.

"Experimentally infected swine developed mild illness and seroconverted," according to the researchers. Additionally, they determined that viral shedding occurred among the infected swine for up to 13 days.

"Our results show that the introduction of [pandemic H1N1] virus to swine has provided it with opportunities for reassortment," wrote Dr. Vijaykrishna and associates. This "reservoir of reassortment" could, if left unchecked, "produce novel viruses of potential threat to public health." ■