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Press Release

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HPV VACCINE MAY BE EFFECTIVE IN ADOLESCENTS WITH KIDNEY DISEASE, BUT LESS SO IN THOSE WITH A KIDNEY TRANSPLANT

Additional research is needed to find ways to protect kidney transplant recipients

Highlights

- Following vaccination against human papillomavirus, girls and young women with chronic kidney disease and those on dialysis had antibody levels above the threshold that indicates protection from infection.
- A significant proportion of patients with kidney transplants showed evidence of an inadequate antibody response to the vaccine.

Infection with human papilloma virus is the first step in the development of cervical cancer.

Washington, DC (April 7, 2016) — Human papillomavirus (HPV) vaccination stimulates robust and sustained immune responses in girls and young women with chronic kidney disease (CKD) and those on dialysis, but less optimal responses to the vaccine were observed among those with a kidney transplant. The findings, which appear in an upcoming issue of the *Clinical Journal of the American Society of Nephrology* (CJASN), suggest that HPV vaccination provides considerable benefits for kidney disease and dialysis patients but may not be as beneficial for kidney transplant recipients.

Cervical cancer is the second most common cancer in women worldwide and is almost entirely caused by HPV infections. There are 40 different strains of HPV, with certain strains being more likely to cause cervical cancer or genital warts. HPV is also a common sexually transmitted infection in the United States, and estimates from data from 2003-2006 showed that 42.5% of women aged 14 to 59 years were infected with one or more strains of HPV. Since that time, HPV vaccines have been developed and have shown great success in protecting healthy women from infection and from developing cervical cancer and genital warts.

Girls and young women with CKD, as well as those who have developed kidney failure that requires dialysis or a kidney transplant, have compromised immune systems, and as a result they have a significantly elevated risk of developing cervical cancer and genital warts if they become infected with HPV. Therefore, the potential health benefits of HPV vaccination may be substantial in this vulnerable population.

To examine the immune response to HPV vaccination among these girls and young women, a team led by Delphine Nelson, MD, MHS and Jeffrey Fadrowski, MD, MHS (Johns Hopkins University School of Medicine) conducted a study that included 57 female patients aged 9 to 21 years, of whom 25 had CKD, 9 were on dialysis, and 23 had received a kidney transplant. Participants received the standard 3-dose vaccine series of the HPV vaccine, and immune responses were determined by measuring the amount of antibody made by the patients against each of the 4 HPV genotypes included in the vaccine. Antibody levels were measured prior to vaccine dose 1, less than 12 months after vaccine dose 3, and 12 months or longer after vaccine dose 3.

The investigators found that study participants with CKD and those on dialysis had antibody levels above the threshold that indicates protection from infection, but a significant proportion of patients with kidney transplants showed evidence of an inadequate antibody response.

“This is important information as it means that patients with a kidney transplant, whom we know are at increased risk of developing cervical cancer from HPV infection, may not be protected from HPV infections from the HPV genotypes included in the vaccine,” said Dr. Nelson. “The next step is to determine the best way to protect these young women. Some potential interventions include a higher dose of the vaccine, or an additional booster.” She noted that future studies are needed to test these and other strategies.

Study co-authors include Alicia Neu, MD (Johns Hopkins University School of Medicine), Sandra Amaral, MD (University of Pennsylvania School of Medicine and the Children’s Hospital of Philadelphia), Alison Abraham, PhD (Johns Hopkins University Bloomberg School of Public Health), and Donald Batisky, MD (Emory University School of Medicine).

Disclosures: The study was funded by Merck & Co’s Investigator-Initiated Studies Program. Merck & Co manufactures Gardasil, the HPV vaccine used in this study. Merck & Co also analyzed the antibody levels to the HPV genotypes.

The article, entitled “Immunogenicity of Human Papillomavirus Recombinant Vaccine (Gardasil®) in Children with CKD,” will appear online at http://cjasn.asnjournals.org/ on April 7, 2016, doi: 10.2215/CJN.09690915.

ignore or delay obtaining professional medical advice because of information accessed through ASN. Call 911 or your doctor for all medical emergencies.

Founded in 1966, and with nearly 16,000 members, the American Society of Nephrology (ASN) leads the fight against kidney disease by educating health professionals, sharing new knowledge, advancing research, and advocating the highest quality care for patients.

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