Vaccines to Prevent Cancer

Available vaccines offer protection against cervical, anal, oral, liver and stomach cancers.

March 16, 2020 By Liz Highleyman

Researchers are working overtime to develop therapeutic vaccines to treat cancer (see "A Shot at a Cure"). In the meantime, preventive vaccines are a surefire way to protect against certain malignancies.

Human Papillomavirus

Human papillomavirus (HPV) causes cervical, anal, oral and other cancers. Most people acquire this common sexually transmitted infection soon after they become sexually active.

The Gardasil 9 vaccine protects against nine types of HPV that cause cancer or anal-genital warts. HPV vaccines are safe and effective, reducing infection rates and preventing precancerous cell changes.

The Centers for Disease Control and Prevention (CDC) recommends HPV vaccination for boys and girls at age 11 or 12, with catch-up vaccines for those up to age 26. Although the vaccine doesn't work as well for older people, those ages 27 to 45 can talk with their health care provider about whether vaccination makes sense for them.

Hepatitis B

Over years or decades, chronic hepatitis B virus (HBV) infection can lead to complications that include liver cirrhosis and hepatocellular carcinoma, the most common type of liver cancer.

The HBV vaccine is part of the routine immunization schedule for infants, with the first dose given soon after birth. The CDC also recommends the vaccine for adults at risk for the blood-borne virus. These include people with more than one sex partner, gay and bisexual men, people who inject drugs, health and public safety workers, certain travelers and people with chronic liver disease, HIV, kidney disease or diabetes—as well as anyone else who wants to be protected.

Hepatitis C

Like HBV, hepatitis C virus (HCV) also causes cirrhosis and liver cancer, and it may trigger non–Hodgkin lymphoma.

HCV does not confer natural immunity like HBV does, meaning people can acquire the virus more

than once. This makes it difficult to develop an effective vaccine. However, a recent study showed that while an experimental hepatitis C vaccine failed to prevent chronic infection, those who were vaccinated and then contracted HCV had a lower viral load, showing that it stimulated immune activity.

The good news is that direct-acting antiviral medications can now cure hepatitis C in almost everyone with just eight to 12 weeks of well-tolerated oral treatment.

Epstein-Barr Virus

Epstein-Barr virus (EBV), part of the herpesvirus family, is linked to stomach cancer, nasopharyngeal cancer (affecting the upper part of the throat) and some types of lymphoma.

There is currently no vaccine for EBV, but researchers are making progress. Recent studies in mice and monkeys showed that experimental vaccines elicited potent antibody responses that prevented the virus from entering cells.

Helicobacter Pylori

Helicobacter pylori are bacteria that cause stomach ulcers and gastric cancer. A vaccine is not yet available, but research is underway, especially in Asia, where stomach cancer is common. Early-stage clinical trials suggest that vaccinating children may be a feasible way to prevent this infection.

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