

Anti-Cancer Vaccine For Hep B

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Until 1965, when a team of researchers led by Dr. Baruch Blumberg of the National Institutes of Health (NIH) discovered the virus that causes hepatitis B, a vaccine for the mysterious disease that attacks the liver seemed like science fiction. But that discovery, and the subsequent creation of a blood test to detect the presence of the virus, set the stage for the speedy development of a vaccine so effective in preventing hepatitis B infection — which can lead to liver cancer — that the Centers for Disease Control and Prevention (CDC) have hailed it as the “first anti-cancer vaccine.”

The first vaccine was developed by Chiron, based in Emeryville, Calif., and approved for patients by the Food and Drug Administration (FDA) in 1981. A synthetic version would replace the original, plasma-derived version a few years later.

Since 1981, more than one billion doses of hepatitis B vaccine have been administered to patients worldwide. Still, hepatitis B continues to be one of the most common viral infections in the world. In the United States alone, an estimated 200,000 persons are newly infected each year.

Slipping Through the Cracks

While immunization of newborns against hepatitis B has become standard for well over a decade in the United States (the first of three required doses is administered at birth), the push to vaccinate adults has only recently begun to gain steam. That is due in large part to a previous lack of knowledge within the greater medical community about hepatitis B, and about which patients are most at-risk of contracting the disease in particular.

CDC guidelines have, for some time, included screening and vaccinating adults for hepatitis B. But they failed to address the higher rates of chronic hepatitis B infection within some communities. So implementation of these prescribed measures fell far short of expectations, and infection rates within these affected communities, as well as the number of hepatitis-B-related liver disease and liver cancer diagnoses, continued to climb.

Asian and Pacific Islander Americans (APIs), for instance, have demonstrated a higher prevalence of chronic hepatitis B infection and hepatitis-B-related liver cancer than Caucasians. An estimated one out of every ten APIs is chronically infected, compared to one out of every thousand in the general population. Without monitoring or treatment, 25 percent of chronically infected APIs will die of liver failure or liver cancer.

To put that in perspective, San Francisco currently has the highest liver cancer rates in the country. More than one-third of its population is Asian and Pacific Islander American.

Stepping Up its Game

Dr. Samuel So, founder of the Asian Liver Center at Stanford University, was among the members of the medical community pushing for federal health officials to address this disparity. With So's help, the CDC recently revised its guidelines to include a renewed emphasis on the screening and vaccination of adults, particularly members of at-risk groups. That includes foreign-born immigrants from countries where the prevalence of chronic hepatitis B infection is greater than two percent. For the first time, the new guidelines also promote education and prescribe long-term care of chronically infected patients.

Due in large part to the success of the San Francisco Hep B Free campaign — a collaborative effort on the part of the City of San Francisco, private health care and several hundred local community organizations to screen, vaccinate and treat all API residents for hepatitis B — the CDC chose to announce its new guidelines at a press conference held in San Francisco on Sept. 18, 2008.

The guidelines may have been new to physicians and hospital administrators in other parts of the country. But thanks to San Francisco Hep B Free, which had been prescribing a similarly aggressive approach to screening and vaccination since its launch in April 2007, the measures were already well on their way to becoming standard practice in San Francisco. The program is considered a national model, and several American and European cities have already expressed interest in replicating it.

Three Shots Protect for a Lifetime

U.K.-headquartered Glaxo Smith Kline and New-Jersey-based Merck & Co., Inc., both produce vaccines used to prevent hepatitis B in adults and children: Engerix B and Recombivax HB (licensed from Chiron), respectively. GlaxoSmithKline also produces a combination vaccine for hepatitis A and B, TwinRix, for use on adult patients.

Engerix B and Recombivax HB are both administered in a series of three injections, given over a period of six months. Adults should be tested for hepatitis B prior to vaccination.

The side effects of both vaccines are minimal, with the most common ones leading to soreness and swelling at the injection site. The hepatitis B vaccine is considered to be one of the safest and most effective vaccines ever made.

“We know that vaccination works,” says Dr. Thomas Haddad, a gastroenterologist at Saint Francis Memorial Hospital in San Francisco. “Hepatitis B is such a terrible disease. I’ve seen what it can do. But it’s preventable. So, every time I vaccinate someone, I feel like I’m doing them a huge service.”