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ASIA EDITION

New personalized vaccines promise to keep cancer at bay

July 7, 2017 | News

Personalized cancer vaccines, tailored to the tumors of individual patients, kept disease in check in two early-stage clinical trials



Singapore: In a recent paper published in the journal Nature, American and German oncologists have proven that personalized cancer vaccines are safe and clinically effective for the prevention of melanoma. One vaccine was developed at the U.S.-based Dana-Farber Institute and Broad Institute and the other by privately owned German biotech firm BioNTech, which uses so-called messenger RNA to carry the code for making its therapeutic proteins.

The researchers sequenced the DNA of tumour cells and healthy cells from each person to identify cancer-specific mutations and pinpoint the neoantigens involved. They concluded that the vaccine was safe and triggered an immune response.

The first publication of American scientists report on the results of the first phase clinical trial of a vaccine aimed at 20 personalized neoantigens associated with skin cancer. Four of the six patients who were vaccinated during 25 months there were no recurrences of melanoma. Typically, at least half of melanoma patients relapse within two years.

In the second publication of the German and Austrian authors report the first of its kind application of a personalized approach to vaccination based on RNA, which aimed at the destruction of 13 patients, melanoma patients, neoepitopes. In eight patients after 23 months after vaccination, the tumor disappeared.

Unlike a traditional vaccine that prevents disease, the aim of NeoVax is to prevent cancer from recurring in melanoma skin cancer patients after their tumours have been surgically removed.

Researchers elaborated that further studies with larger group of participants was necessary to test the efficacy of vaccine. They also said that they would conduct the second phase of clinical trials of vaccines, and to determine their effectiveness in combating other types of cancer.