

New hope for AIDS victims *Vaccine shows success in trials*



For the first time ever, a trial vaccine has successfully cut the risk of HIV infection by 31% in humans. In the largest human trial of an AIDS vaccine till date, involving more than 16,000 volunteers in Thailand, scientists found that HIV infections were prevented in over a third of the 8,000 people who received the vaccine. For the past 20 years, scientists have been testing experimental vaccines against HIV on human subjects. But all of them, including two large trials in 2007, failed. Not only did those candidate vaccines fail to stop infection but in some cases it actually helped the virus to infect.

However, this latest vaccine - a combination of two genetically engineered vaccines ALVAC-HIV and AIDSVAX B/E, neither of which had worked before in humans ^ is the first to have even partly succeeded in a human trial. This has given hope that the global dream of an effective vaccine against HIV - the virus known to be a master in evading and fooling the human immune system - could end up being a reality in the near future.

This is how the Thai Phase III HIV vaccine clinical trial, also known as RV 144 took place - 16,402 non-infected volunteers (18-30 years old) at average risk of HIV infection were enrolled for the study. While half of them received six doses of the vaccine combo made from the virus that commonly circulates in southeast Asia, the other half received a placebo or a dud. Vaccinations ended in July 2006 and volunteers underwent an HIV test every six months for three years.

An international Data and Safety Monitoring Board met eight times since trial initiation and did not report any safety concerns. The study vaccines did not cause HIV infection because they were not made from and did not contain the entire virus, either live or killed. Of those who got placebos, 74 became infected, while only 51 of those who got the vaccines did. Although the difference was small, the team said it was statistically significant and meant the vaccine was 31.2% effective. Details of the \$105 million study will be given at an HIV vaccine conference in Paris in October.

Scientists say RV 144 - conducted jointly by the United States Army, the Thai ministry of public health and the patent-holders of the vaccines Sanofi-Pasteur - was designed to test the vaccine strategy's ability to prevent HIV infection, as well as its ability to reduce the amount of HIV in the blood (viral load) of those who became infected after they enrolled in the study. There's no doubt that this is a very important result. Conceptually, we now know a vaccine is possible," said Dr Anthony S Fauci, director of the National Institute of Allergy and Infectious Diseases.



The most confusing aspect of the trial, according to Dr Fauci, is that everyone who did become infected developed roughly the same amount of virus in their blood whether they got the vaccine or a placebo. Normally, any vaccine that gives only partial protection lowers the viral load. "If we knew what immune response protected these people in the trials, we'd be able to be a lot more efficient in targeting it," scientists said.

Meanwhile, the road to an effective vaccine continues to be a long one. An HIV vaccine would get licensing approval only when it has an efficacy level of 80% and above. The scientists will therefore have to build on the findings and further develop this vaccine to produce a stronger response.

The International AIDS Vaccine Initiative (IAVI) greeted with excitement this new development. "The outcome is very exciting and a significant scientific achievement. It is the first demonstration that a candidate AIDS vaccine provides benefit in humans," said IAVI president Seth Berkley. The World Health Organisation and UNAIDS said the results "instilled new hope" in the fight against HIV (TNN 25 September 2009).