

31 July 2015

Press release

EMBARGOED UNTIL FRIDAY, 31th JULY 2015, 14:00 CET

Ebola vaccine tested successfully for the first time

A vaccine against the Ebola virus, tested in West Africa for the first time in a field trial, has proved to be effective. People who had come into close contact with someone recently infected, and who are therefore at particularly high risk, were vaccinated. Investigators from the University of Bern were heavily involved in designing the World Health Organization (WHO) «Ebola ça Suffit» vaccine trial.

The Ebola virus disease epidemic in West Africa has not been defeated yet, although the number of cases has dropped substantially since the start of the year. Just one Ebola case in the most heavily affected countries, Guinea, Liberia and Sierra Leone, can lead to a resurgence. Two vaccines that were recently developed have already undergone preliminary tests in humans. One of the vaccines, «rVSV-ZEBOV», has now been tested in the first large field trial of efficacy and effectiveness in Guinea, West Africa. Prof. Dr. Matthias Egger from the Institute of Social and Preventive Medicine at the University of Bern was involved in this «Ebola ça suffit» trial, together with PD Dr. Sven Trelle and other staff from the Clinical Trials Unit CTU Bern at the University's clinical study centre and Bern University Hospital. The initial results of the study show that the vaccine can effectively contain the further spread of the Ebola virus. The results of the field study and the innovative study methods were published in the «Lancet» and «BMJ» scientific journals.

Protective rings against Ebola

The international group of researchers used a multi-stage approach to test the efficacy of the vaccine. Their strategy was based on «ring vaccination», which was used to eradicate smallpox in Africa in the 1970s. The first step identified people who had been in close contact, within the last 21 days, with a person who had recently contracted Ebola and were therefore directly at risk of infection; close contacts included family members, household members or nursing staff. The second step identified people who were indirectly at risk, for example the neighbours or work colleagues of a close contact. These contacts are also part of the «ring». People in the ring and eligible to receive the vaccine were asked for consent to take part in the trial.

Anyone who had contracted Ebola before, children, pregnant women and women still breastfeeding, the seriously ill and people with immune deficiencies or allergic reactions to vaccines were excluded from the study. Ninety rings in total could be defined and examined in the period from April to July 2015. The rings consisted of 7,651 contacts, of whom 5,415 were eligible for vaccination. 3,512 (65 percent) of these could in turn be vaccinated.

The rings were randomly allocated to two groups of equal size: individuals in the first group were vaccinated immediately, the others after a waiting period of 21 days, the incubation period of Ebola. It was therefore expected that some of the people in the second group would contract Ebola. «Unfortunately this is the only way to test whether the vaccine really works», Matthias Egger says. The results showed that those vaccinated immediately were fully protected one week after vaccination, whereas 16 Ebola cases were observed in the group with delayed vaccination. These cases were all either contracted before or within six days after the delayed vaccination. There were no new Ebola cases thereafter. «We can therefore say that the vaccine offers 100% protection against Ebola after roughly one week», Sven Trelle says. Overall the protective effect within the rings, in which there were also people who had not been vaccinated, was still 76 percent, which means the transmission of the virus could be interrupted in many cases. «It is not just the efficacy of the Ebola vaccine that has now been shown but also the effectiveness of the ring vaccination strategy», Egger explains with delight. «This could finally be the beginning of the end of the Ebola epidemic in West Africa and also be useful when combating this disease in the future.»

Publication details:

Henao, Longini, Egger et al.: *Efficacy and effectiveness of a rVSV-vectored vaccine expressing Ebola surface glycoprotein: interim results from the Guinea ring vaccination cluster-randomized trial*, Lancet, 31.7.2015, in press

Publication in British Medical Journal: *Ebola ça Suffit Trial Consortium*. BMJ, 27.7.2015.
Available at <http://www.bmj.com/content/351/bmj.h3740>

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