Antibody Therapy to Limit the Spread of Ebola Virus

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Antibody therapy for viral infections in the form of immunoglobulin G (IVIG) has been successfully used over the past century [1,2]. IVIG is a major source for antibody therapy due to the diverse repertoire of antibodies against bacterial and viral infections that it contains.

We and others used IVIG for the prophylactic and therapeutic treatment of mice infected with West Nile virus (WNV) and showed that pooled IVIG from donors protected the mice from the development of a fatal WNV disease [3]. No protection of WNV-infected mice was obtained when they were treated with pooled IVIG prepared from American donors in the pre-WNV era. The protective efficacy of the pooled Israeli IVIG preparation was attributed to the fact that WNV is endemic in Israel and many people have been exposed to the virus or even suffered from mild infections. The efficacy was improved with the treatment of West Nile hyperimmune IVIG (WIVIG). The success of these treatments was time and dose dependent. It was noted that prophylactic therapy was always better than the therapeutic treatment [4].

There is good evidence that antibody therapy can be effective in protecting against Ebola infection; nonetheless, as in other diseases it is probably also time and dose dependent [5]. Since in most cases exposure to Ebola patients can be detected before clinical symptoms appear, it may be more efficacious to treat these human contacts – including health workers – in addition to the patients, with hyperimmune Ebola serum or IVIG prepared from recovered individuals.

In order to control the pandemic, prophylactic treatment should be given. That is, prevention should become the central strategy, and IVIG prepared from convalescent patients should be used at earlier stages before clinical symptoms emerge.

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