Are Ebola Researchers Making Progress in the Fight Against the Deadly Virus?

In his essay, “Politics and the English Language,” George Orwell recommended that, in prose, the active voice is always to be preferred to the passive. He put it more actively: never use the passive where you can use the active. But he knew that any such rule must have exceptions and the last of his rules for writing well was “Break any of these rules sooner than say anything outright barbarous.”

When it comes to immunization, the active is also preferable to the passive, which is not to say that the latter should never be used. Where infectious disease is concerned, active immunization is mainly prophylactic while passive immunization is used in the treatment of established disease. It consists of giving antibodies from a human or an animal that has been infected with and recovered from the disease and has developed antibodies to it. Passive immunization was first used successfully in diphtheria at the end of the nineteenth century and was the first therapeutic triumph of the new science of immunology.

The latest disease in which passive immunization has been tried is Ebola fever. In the epidemic of 1995, eight patients with Ebola were infused with whole blood of people who had survived the disease, and seven of the eight survived: a much higher percentage than was expected (normally at the time, more than 70 per cent who had the disease died). But the trial was not a controlled one and nothing much could be concluded from it

The epidemic of Ebola in 2015 was the worst yet recorded: 28,183 cases were confirmed of whom 11,306 died. A team in the

afflicted West African country of Guinea decided to run a trial of plasma taken from patients recovered from the disease and given to patients currently suffering from it. The results are reported in a recent edition of the *New England Journal of Medicine*, and they are disappointing though not conclusively so.

The researchers gave the immune plasma to the first patients of all ages who arrived at the hospital with disease confirmed by laboratory diagnosis, 102 such patients being enrolled in all. Thus the trial was not properly controlled, as in a double-blind trial. Instead, the researchers compared the death rate of patients given the immune plasma with patients who had had the disease immediately before the trial started. Apart from the plasma, the two groups of patients received identical treatment. The authors estimated that their trial was large enough to have detected a statistically significant reduction in death rate of 20 per cent.

In the event, the reduction was much smaller than that, from 38 per cent to 31 per cent, but when adjusted for the ages of the patients it was only 3 percent, a diminution which was not statistically significant (i.e. there was more than a 5 per cent possibility that the difference was the result of chance).

But it was possible that subgroups within the treated patients did benefit, for example young children and pregnant mothers. Of 5 children under the age of 5 given plasma, only 1 died; of 23 such children not given plasma, 15 died. Unfortunately, these numbers are too small to conclude anything definite, but are at least are hopeful.

It was also possible that not enough plasma was given to have an effect, and also that the plasma given varied in its content of neutralizing antibodies. Such was the lack of laboratory facilities in Guinea that it was impossible to test the plasma for levels of antibody. If plasma ‘strong’ in

antibodies only had been given, perhaps the results would have been different.

However, researchers have recently developed a vaccine that may prove once again that, as in prose, the active is better than the passive.

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