

Surveillance System of Acute Flaccid Paralysis

Abstract

According to the WHO guideline, once an AFP case is reported, the case investigation should be proceeded with in less than 48 hours, and the case's fecal samples be collected twice during the first fourteen days after the onset of the disease. Also, five contacts of the case should be selected and their fecal specimens collected and examined. In 28 days the test report of the case should be completed. The two fecal samples collected from each one of the case and his or her five contacts should be 24 to 72 hours apart. After arriving at the laboratory, the fecal sample is first processed following a standard procedure of pretreatment. Then the possible virus in the sample is cultured using each of three different cell lines, i.e. RD, Hep-2, and L20B as the medium. The viruses propagated from those specimens and capable of causing CPE in cells are further analyzed with IFA, antibody neutralization, and RT-PCR. Finally, the virus is typed through gene sequencing and comparing the resulting sequences with those of some references.

What is chosen to be sequenced in this laboratory is the VP1 section in the nucleic acid variation zone of the poliovirus isolated from the AFP case and the contacts, and the results are compared with that of OPV to find out whether it is a vaccine-like strain, a vaccine-derived strain, or a wild strain. If it happens to be a vaccine-derived strain or wild strain, we ought to check the OPV completion record for the neighborhood of the case, expand the specimen collection and testing program in that neighborhood to determine if the virus has already invaded there, and necessary measures to be taken to stop the outbreak from running out of control.

Is it possible for poliomyelitis to come back? According to an article in a recent issue of *Morbidity and Mortality Weekly Report* (MMWR, Vol. 53, No.20) published by the US-CDC, between January 2003 and March 2004, eight countries located in the western and central parts of Africa, which previously announced having polio eradicated, were affected by their polio-stricken neighbors Nigeria and Niger and resulted in outbreaks of 63 imported polio cases. The reason was that the region had too low a vaccination coverage. This is exactly the biggest worry of WHO since many non-epidemic countries or areas have stopped large scale polio vaccination program and thus become particularly vulnerable to the imported cases. Besides, during 2000 to 2002, Dominica, Haiti, Madagascar, and the Philippines had a total of 28 polio cases taking place due to low coverage of the OPV vaccination program, which facilitated the long-term spread of vaccine strain among the population failing to receive the vaccination. The virus in this situation has gradually derived into the so-called cVDPVs and made confirmed cases of infected by derived virus from the vaccine strain to appear. Since 1991 there has no wild strain of poliovirus ever found in the western hemisphere, these rare outbreaks of cVDPVs cases immediately attracted the attention of WHO to watch their development closely. We should be very careful about this of course, as the old saying goes, "there is no country border as far as disease spread is concerned." In order to prevent imported outbreaks from happening and vaccine-derived poliovirus from spreading, the maintenance operation of post eradication era of polio is more important than ever.

Keywords: AFP, vaccine-derived poliovirus, poliovirus