Risk assessment of Enterovirus D-68 (EV-D68)

Background

Enterovirus D-68 (EV-D68) was identified in 1962 and is one of more than 100 non-polio enteroviruses. EV-D68 can cause mild to severe respiratory illness requiring ventilatory support and has been associated with cases and clusters of polio-like neurological symptoms including paralysis and meningo-encephalitis.

EV-D68 is probably spread by droplets (inhalation of virus particles when an infected person coughs or sneezes), or touching a surface that someone with the infection has coughed or sneezed on and then touching the face. The incubation period is 3 to 5 days. EV-D68 can be detected in respiratory secretions, such as saliva, nasal mucus, or sputum, particularly where respiratory illness is present. It can also be detected in stool samples. Detection of EV-D68 in patients with acute neurological manifestations can be difficult as the virus is rarely detected in CSF. Previously, low numbers of EV-D68 have been detected annually in the UK, with seven cases in 2012 and three cases in 2013.

In August 2014, the United States of America (USA) and Canada reported an increase in detections of EV-D68 associated with cases of severe respiratory illness and cases of unexplained neurological illness (1). In response, UK and European surveillance of EV-D68 was enhanced (2) and in 2014 and 2015; 56 and 14 cases, respectively were detected in the UK. So far in 2016, 38 cases of laboratory confirmed EV-D68 infection have been diagnosed. These cases are scattered across the UK and the majority were during the spring and summer months. The available information suggests that the majority of these cases are sporadic and have presented with respiratory symptoms resulting in hospital admission. A small number presented with neurological signs and symptoms.

It is currently not clear if this increase in numbers represents a change in incidence of the virus, or is primarily due to increased awareness and testing for EV-D68. Screening of recent samples from individuals consulting with respiratory symptoms in primary care suggests that EV-D68 circulates in the community at low levels. As EV-D68 does not form part of the standard laboratory respiratory screen, it is likely that
cases are occurring in the community, but are not being detected. Detections are therefore biased towards those with more severe disease. It is important to note that other seasonal respiratory and enteric viruses also circulate in the UK – in particular other enteroviruses, RSV and influenza.

**Risk Assessment**

The risk that any sporadic case of severe acute respiratory disease of unconfirmed aetiology is due to EV-D68 is **very low**.

The risk that any sporadic case of unexplained neurological symptoms is due to EV-D68 is **very low**.

The risk that any cluster or outbreak of severe unexplained acute respiratory disease or unexplained neurological symptoms is due to EV-D68 is **low**.

The risk that EV-D68 is circulating in the community in the UK, but is largely undetected is **moderate**.

There is no specific vaccine or treatment for EV-D68, clinical and public health management is similar to that of other acute respiratory infections, or unexplained neurological illness. Therefore the risk to public health through failure to detect EV-D68 in symptomatic individuals is considered to be **very low**.

**EV-D68 Surveillance in the UK**

Enterovirus detection does not currently form part of a standard respiratory screen in the UK, but should be considered in persons with otherwise undiagnosed severe acute respiratory infection. Neurological cases (with symptoms such as acute flaccid paralysis or meningitis) may be identified through the enhanced enterovirus surveillance system established as part of poliovirus elimination. Appropriate samples (including upper respiratory tract samples) should be taken from such cases. In those in whom enterovirus is detected, samples should be sent for sub-typing to the PHE enteric virus reference laboratory. Identification of EV-D68 is reliant on clinical suspicion and laboratory investigation to exclude other infections.

**Advice for clinicians and health professionals**

Clinicians should be aware of the community circulation of EV-D68 and of the need to submit appropriate samples in patients, particularly in children, where there is a severe acute respiratory infection and/or with unexplained neurological symptoms, the presence of acute flaccid paralysis or other presentations such as meningo-encephalitis. In particular, EV-D68 should be suspected for clusters of severe acute respiratory disease, or unexplained neurological symptoms.

Appropriate infection prevention and control is essential in healthcare facilities and consist of standard and droplet precautions unless aerosol generating procedures are undertaken.
Local liaison with virology/microbiology departments is important to ensure that appropriate specimens are taken. Respiratory specimens are best; NPA and lower respiratory specimens are preferred to throat swabs. EV-D68 is rarely detected in CSF and failure to detect the virus in CSF does not exclude infection; respiratory and stool/rectal swab samples should be tested in addition to CSF.

Further advice on testing and sample referral for EV-D68 is available from your local PHE public health laboratory. Initial screening should be undertaken locally. Enterovirus positive samples from such cases (in particular respiratory tract samples) should be sent to the Enteric Virus Unit for typing including testing for EV-D68.

Further Reading


CDC pages: http://www.cdc.gov/non-polio-enterovirus/index.html

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