Public Health England

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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 infection can cause a spectrum of respiratory illness, from mild to severe (requiring ventilatory support) and has also 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. Stool samples are generally preferred for diagnosing enterovirus infection, particularly for neurological disease. Although some EV-D68 viruses are neurotropic, detection of EV-D68 is rarely detected in the CSF of patients with acute neurological manifestations. EV-D68 can also be detected in respiratory secretions, such as saliva, nasal mucus, or sputum, particularly when respiratory illness is present. 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. It is clear that, with increased awareness amongst clinicians, the wider application of appropriate investigations can to lead to a major increase in recognised and reported infections with this virus.

So far in 2018, 68 cases of laboratory confirmed EV-D68 infection have been diagnosed by the national reference laboratories in England and Wales. These cases are scattered across England and Wales with the majority during the spring and summer months. Although follow-up is on-going, the available information suggests that the most of these cases are sporadic with the vast majority presenting with

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respiratory symptoms resulting in hospital admission. Only a small number of cases to date have presented with neurological signs and symptoms.

As EV-D68 often does not form part of the standard laboratory respiratory screen in clinical laboratories, it is likely that milder cases are occurring in the community, but are not being detected. Detections are therefore biased towards those with more severe disease.

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 currently circulating in the community in the UK, but is largely un-detected is moderate

There is no specific vaccine or treatment for EV-D68 infection. Clinical and public health management is similar to other acute respiratory infections, or unexplained neurological illness.

EV-D68 Surveillance in the UK

Enterovirus detection does not currently form part of most standard respiratory screens in UK clinical laboratories, 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 stool and upper respiratory tract samples, should be obtained from any patient with compatible symptoms (unexplained neurological symptoms or severe acute respiratory disease).

In those in whom enterovirus is detected, samples should be sent for sub-typing to the PHE national enteric virus reference laboratory (Enteric Virus Unit, PHE Colindale). Identification of EV-D68 is reliant on clinical suspicion, appropriate sampling and local laboratory investigations to identify potential causative pathogens. .

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 (including stool and respiratory samples) from adults and children with severe acute respiratory disease or with unexplained neurological symptoms and/or 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. All cases of suspected or confirmed acute flaccid paralysis (AFP) and acute flaccid myelitis (AFM) require rapid notification of the local PHE Health Protection Unit and appropriate laboratory investigations (including stool samples), for exclusion of poliomyelitis.

Appropriate infection prevention and control is essential in healthcare facilities and consist of standard and droplet precautions unless aerosol generating procedures are undertaken, in which case, additional respiratory precautions are required.

Local liaison with virology/microbiology departments is important to ensure that appropriate specimens are taken. Respiratory and stool specimens are the optimal sample types. NPA and lower respiratory specimens are preferred to throat swabs. EV-D68 is rarely detected in CSF and failure to detect enterovirus in CSF does not exclude EV-D68 infection; respiratory and stool/rectal swab samples should therefore always be tested in addition to CSF. All cases of suspected or confirmed AFP/AFM also require two unadulterated stool samples (minimum 2g each and collected 24-48h apart) to be submitted to the Polio Reference Service, PHE Colindale, for exclusion of poliovirus infection.

Further advice on testing and sample referral for EV-D68 is available from your local PHE public health laboratory.

Initial enterovirus screening should be undertaken locally. Enterovirus positive samples from such cases (in particular respiratory tract samples and fresh stool samples) should be sent to the Enteric Virus Unit for typing including testing for EV-D68.

Further Reading

ECDC Risk Assessment EV-D68 associated with severe neurological symptoms in children and adults in European countries http://ecdc.europa.eu/en/publications/Publications/01-08-2016-RRA-Enterovirus%2071-Spain,%20France,%20Netherlands.pdf

ECDC Risk Assessment EV-D68 in USA and Canada: http://www.ecdc.europa.eu/en/publications/Publications/enterovirus-68-USA-Canada-rapid-riskassessment.pdf

PHE Infection control precautions to minimise transmission of acute respiratory tract infections in healthcare settings
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/452928/RTI_infection_control_guidance_PHE_v3_FPF_CT_contents2.pdf

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

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