1 ZOONOTIC AND VECTOR-BORNE DISEASES

a An update on rabies in South Africa, 2018

A case of rabies was confirmed in a 68-year-old male from Ntunda, Nkomazi Sub-district (about 50 kilometers southwest of Komatipoort), Mpumalanga Province. The patient was bitten by a stray dog on his right foot (big toe) on 18 October 2018. The stray animal entered his house, and the patient was bitten when he tried to chase the dog away. The patient accessed rabies post-exposure prophylaxis (PEP), but more than two weeks after the exposure event. At this time, the patient already displayed signs and symptoms of rabies. The diagnosis of rabies was confirmed on postmortem-collected brain samples. This case presented with a shorter incubation period than expected. Typically, an incubation period of 4-6 weeks is expected. Shorter incubation periods are typically reported when patients suffer severe wounds, particularly to the head and neck, but also when wounds involve highly innervated areas.

A total of 15 human rabies cases (including the case reported here) has been laboratory confirmed in South Africa for 2018 to date. These cases were reported from KwaZulu-Natal (n=8), Eastern Cape (n=6) and Mpumalanga (n=1) provinces. Two additional probable cases were reported from the Eastern Cape Province. These cases could not be confirmed through laboratory testing, but presented with a rabies-compatible clinical history and history of exposure to potentially rabid dogs. This is the greatest number of human rabies cases reported in South Africa since 2010. During 2017, a total of seven cases was reported, and only two cases in 2016. The increase in the number of human rabies cases is directly related to the current outbreak of dog rabies in KwaZulu-Natal and Eastern Cape provinces.

Two dogs have tested positive for rabies in Ga-Rankuwa (about 40 kilometres north of Pretoria), Gauteng Province, in November 2018. Ring vaccination of dogs in the area has commenced, and a follow-up has been done regarding the availability of rabies PEP in local healthcare facilities.

Rabies is an incurable disease upon onset of clinical symptoms but it may be prevented through vaccination of animals and correct administration of rabies post-exposure prophylaxis following possible exposure events. For more information on the disease and its prevention, visit www.nicd.ac.za

Source: Centre for Emerging Zoonotic and Parasitic Diseases, NICD-NHLS; januszp@nicd.ac.za

2 VACCINE PREVENTABLE DISEASES

a A case of immunodeficiency-associated vaccine-derived poliovirus serotype 3 (iVDPV) infection in Gauteng Province, South Africa

A 10-month old boy presented with acute flaccid paralysis (AFP) in Johannesburg on 4 October 2018. He had a medical history of a previous intensive-care admission at six months of age. An enterovirus was isolated from the patient's stool and further testing revealed the virus to be a poliovirus type 3 with 15 nucleotide changes from the Sabin reference strain, making it a vaccine-derived poliovirus (VDPV). Further investigations revealed that the patient has MHC class II deficiency, known as bare lymphocyte syndrome, based on complete absence of HLA-DR expression on the child's lymphocytes. Thus, the VDPV in this case is classified as immunodeficiency-associated (iVDPV).

There are three types of VDPV: circulating (cVDPV), immunodeficiency-associated (iVDPV) or ambiguous (aVDPV). cVDPV occurs when VDPV becomes transmissible and circulates in the community for years, due to low vaccination coverage and poor herd immunity. iVDPV occurs in an individual patient when there is a genetic immunodeficiency, allowing uncontrolled growth and reversion to virulent virus. aVDPV is diagnosed when both iVDPv and cVDPV have been excluded. While both cVDPV and iVDPV can be transmitted and cause disease, transmission is exceedingly rare for iVDPV, especially if vaccine coverage in the community is high.

As part of a multi-stakeholder response, stool samples from close contacts of the case and the local community were tested and a vaccine coverage survey was conducted. In addition, active search for AFP cases in healthcare facilities (public and private sectors) within the metropolitan municipality where the case was detected was conducted. The child is under specialist treatment and is receiving intravenous immunoglobulin. Stool samples from the case will be tested monthly to monitor viral shedding.

Primary immune deficiency predisposes individuals to severe infection from organisms that would otherwise not cause disease. Bare lymphocyte syndrome (BLS) is a rare disorder with approximately 200 cases reported in the global literature. Infection with unusual organisms can be a first indicator of an undiagnosed primary immune deficiency.

Two cases of iVDPV3 were previously reported in South Africa, in 2011 and early 2018. These cases highlight the need for continued diligence in acute flaccid paralysis surveillance to achieve global polio eradication.

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