
PRIMARY RISK ASSESSMENT

New bornavirus strain detected in Germany

| Date of the signal | Date of the RA | Signal provider | Experts consultation | Method |
|--------------------|----------------|-----------------------|---|--------|
| 19/02/2015 | 04/03/2015 | Germany, through EWRS | Steven Van Gucht, WIV-ISP Brigitte Cay, Coda-Cerva | mail |
| Date of update | Closing date | | | |
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RAPID RISK ASSESSMENT OF POTENTIAL PUBLIC HEALTH EVENT

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|----------------------|---|
| <p>Signal</p> | <p>On 19 February 2015 Germany posted a message on EWRS, reporting three cases of fatal encephalitis in residents of the state of Saxony-Anhalt. The first clinical case was seen in 2011, and the second and the third in 2013 in different hospitals. Affected persons were males aged 62 to 72 years and of age-typical health status. Each of them was known to breed variegated squirrels (<i>Sciurus variegatoides</i>), a type of tree squirrel common to Central America that can be kept as an exotic outside pet. They knew each other but did not live in close proximity to one another. It is unclear whether they exchanged animals. During the prodromal phase, which lasted for two weeks or longer, the patients presented with fever and shivering, fatigue, weakness and walking difficulties. Due to increased confusion and psychomotor impairment they were admitted to neurology wards where they developed ocular paresis. They rapidly deteriorated within a few days and died after some time in intensive care, despite mechanical ventilation.</p> <p>The Friedrich Loeffler Institute on Riems Island investigated the carcass of one variegated squirrel belonging to the third patient. Genetic analysis of a tissue sample pool of the animal using a metagenomics approach produced sequences of a newly identified type of bornavirus. Further molecular and immunohistochemical analysis of brain tissue from the three deceased patients confirmed presence of this virus in the human cases as well. The newly identified virus is clearly different from all currently known bornaviruses.</p> <p>Tissue and cerebrospinal fluid collections from bio banks are now being investigated for the identification of additional cases and previously unresolved cases of encephalitis are being re-evaluated in view of the new virus. In addition, tests are ongoing on squirrels (private and zoo).</p> <p><i>Source ECDC</i></p> |
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| Description | | Score | Description / arguments |
|-------------|--------------------|------------|---|
| 1 | Cause known? | | <p>Bornaviruses (BV) are RNA viruses of the Bornaviridae family. The virus can infect many vertebrate species, including horses, monkeys, cattle, cats, rats... A related avian BV has been described in birds.</p> <p>In animals, BV infection may lead to an acute or sub-acute disease with meningo-encephalitis or mild manifestations with alteration or impairment of nerve-cell functions. Small wild animals are the most probable vectors and reservoirs of BV, although the epidemiology is not fully understood.</p> <p>The first evidence of possible human infections with BV resulted from a study published in 1985 showing that patients with major depressive psychiatric disorders had a higher bornavirus-related seroprevalence as compared with the control group, but a causal relationship has never been proven. The frequency of human infections and the existence of potential 'human BD' are still uncertain.</p> |
| 2 | Unexpected/unusual | Unexpected | Newly identified Bornavirus stain. |
| 3 | Severity | Yes | 3 lethal cases. |

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| 4 | Dissemination (Low/Medium/High) | Low | No other cases around the 3 squirrel breeders identified so far. |
| 5 | Risk of (inter)national spread | Low | Possible other human infections in European countries, among squirrel breeders. |

| Preparedness and response | | | |
|---------------------------|--|-----|--|
| 6 | Preparedness | Low | To our knowledge, testing for the so far known bornaviruses in humans is not available in Belgium. A medical doctor contacted the virology laboratory of the WIV-ISP a few weeks ago for information on possible diagnosis for a patient with suspicion of BV infection (psychiatric disorders). There is no specific surveillance system for encephalitis. |
| 7 | Specific control measures (surveillance, control, communication) | | None so far. |
| Public health impact | | | |
| A | Public health impact in Belgium (Low/Medium/high) | Low | According to information provided by AFSCA-FAVV, there are no (official) breeders of squirrels in Belgium. Few analyses for BV are carried out on animals in Belgium. Coda-Cerva reports some serological analysis on horses a few years ago, all results were negative. |
| B | Recommendations (surveillance, control, communication) | | ECDC recommends testing cases of human encephalitis for this newly identified bornavirus, especially in areas where the presence of bornavirus is documented in animals, in order to contribute to a better understanding of the risk of bornavirus infection in humans. |
| C | Actions | | <ul style="list-style-type: none"> - Information of the RMG - Follow-up of the current investigations in Germany and any further development by WIV-ISP - Need and possibility of surveillance for encephalitis to be described by the service Epidemiology of infectious diseases of WIV-ISP. - Development of a PCR test for BV (not the new strain) at the service viral diseases of WIV-ISP is possible within 4 weeks if required. - In the absence of squirrel breeding in Belgium and BV circulation in animals (although few testing), no need for further information of health professionals at this stage. |

REFERENCES

Rapid Risk Assessment ECDC: <http://www.ecdc.europa.eu/en/publications/Publications/new-bornavirus-strain-detected-EU-rapid-risk-assessment.pdf>