ECDC Risk Assessment

Cowpox in Germany and France related to rodent pets

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PUBLIC HEALTH ISSUE
Risk of further sporadic cases in the human population

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ECDC THREAT ASSESSMENT FOR THE EU
Risk of infection spread person-to-person
None.
Risk for Europe
Possible spread of the disease through pet animal trade with sporadic transmission to humans

DISEASE BACKGROUND INFORMATION

Cowpox is a viral disease circulating among rodent population that appears to be indigenous in Europe. Cowpox virus can be transmitted also to domestic animals such as cats or pet rats (1,3). It has also been described in various zoo animals. Animals get sick and may die of the disease (6). Sporadic human cases of cowpox are reported in Europe, mostly linked to infected animal handling mostly rodents, and cats.

The virus belongs to the Orthopoxvirus genus which comprises 7 other distinct virus species (e.g. Vaccinia, Monkeypox) plus the eradicated Variola (smallpox) virus. Rodents such as voles or lemmings are animal hosts of Cowpox in Europe. Recent studies in eastern France have found antibodies to Cowpoxvirus in 66 (41.8%) of 158 voles (2).

Human infection is the results of direct contact with an infected animal. Infection is through a break of the skin, and this determines the location of the primary lesion, mostly reported in fingers or hands. Large amounts of virus are found in lungs of infected animals. The disease is self limiting in immuno-competent human hosts (localized lesion) but it can be severe, even fatal in immuno-compromised patients (4,5). The incubation period usually varies from 7 to 12 days but can be longer. There is no evidence of human to human transmission (7). There is no approved treatment; however a promising therapeutic option is cidofovir, but this virostatic drug is not approved for the treatment of cowpox. Recent cases in Europe were mostly reported in children and young adults (6,7).
EVENT BACKGROUND INFORMATION

On January 20, 2009 Germany reported a total of 18 cases of human cowpox infections: 6 cases in Bavaria and 12 cases in North Rhine-Westphalia (no date range) (ERWS selective exchange). The message was posted following a query by the Netherlands (January 14 2009) about possible connexion between a suspect case (therefore confirmed as negative and discarded) of Cowpox in the Netherlands in an area close to the German border and the situation of cowpox in Germany.

On January 16, 2009, 3 cases of ulcero-necrotic lesions were reported in Northern France among young girls who bought pet rats in a shop (EWRS, February 5 2009). On February 9 2009, 12 cases have been identified in France including 5 confirmed cases (11 cases in northern France and 1 case in Central region). Confirmation is pending for 6 cases. The mean age was 15 (6 to 30 years) with onset of symptoms from December 29, 2008 to January 24, 2009 (8).

Sequence data of the amplified fragment from several Cowpoxvirus human isolates from Germany and France were identical suggesting a potential common source of infection (German Consultant Laboratory for Poxviruses, Berlin and Unite des Virus Emergents, Marseille).

Veterinary Health Authorities in France and Germany were able to trace back some of the pet rats from France and from North Rhine-Westphalia to the same rat breeder in the Czech Republic. Further investigations by the Veterinary Health Authorities are being conducted to check any link associated with the cases in Bavaria and the other cases in France.

The Czech Public Health Authorities have informed (EWRS, February 5, 2009) that investigations are being conducted around the potential common source and the potential threat for Public Health. The results of the investigations will be communicated to EWRS.

COMMENTS

Cowpox infection is a notifiable disease in France (all Orthopoxvirus infections) and in Germany.
The sequence data analysis of Cowpox isolates from several cowpox cases in Germany in 2008 and recent cowpox cases in France and the trace back investigations of the pet rats to which the cases were exposed, suggested a common source of infection related to international trade of pet rats by a Czech rat breeder.
Other human cases still are under investigation.

CONCLUSIONS

• All recent cases are reported in children or young adults.
• In the current event, pet rats were involved and potential links with a common origin have been reported in two countries.
• Further investigations are conducted by the Veterinary Authorities to identify the origin of contamination of the different human cases and to trace possible connections with animal trades.
• The possible risk for the occurrence of spread of human cowpox infections related to pet rats in other Member States should be evaluated when the results of the veterinary investigations in the Czech Republic are available.

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References

2. Charbonnel N al. Serological evidence of viruses naturally associated with the montane water vole (Arvicola scherman) in eastern France. VBZD 2008, 6:763-7