

Imported cases of chikungunya in metropolitan France, April 2005 - February 2006

H Cordel¹ (h.cordel@invs.sante.fr), I Quatresous¹, C Paquet¹, E Couturier²

¹Département International et Tropical, Institut de Veille Sanitaire, France

²Département des Maladies Infectieuses, Institut de Veille Sanitaire, France

Introduction

By 9 April 2006, 241 000 cases of chikungunya had been reported on the island of Reunion, and 5339 cases on the island of Mayotte. The islands of Mauritius, Seychelles, Madagascar, and Comoros are also affected. Imported cases have been reported from a number of European countries [1].

Each year, about 300 000 people travel to Reunion from metropolitan France (mainland France and Corsica), and therefore the risk of an outbreak in metropolitan France must be considered, especially since the vector, the *Aedes albopictus* mosquito, has been detected in metropolitan France and in northwest Italy, near the borders with France, Spain and Switzerland. Its role in transmission of the virus depends on vectorial competence (intrinsic to the mosquito) and vectorial capacity (dependent on the environment).

In addition to mosquito surveillance, the number of imported human cases must be reported as accurately as possible, in order to assess the risk of transmission within mainland Europe.

Methods

Recent infection is likely if chikungunya IgM antibodies are detected in the five days after symptom onset, but the presence of antibodies does not necessarily mean that the patient is viraemic. In metropolitan France, serology is carried out by two private laboratories and the two national reference laboratories, which also perform PCR and viral culture. Data from laboratories from April 2005 to the end of February 2006 have now been analysed. Variables used were patient and laboratory postcodes, patient age, patient sex, and date of the blood sample. Data on the patients' dates of travel and illness onset were not available from the laboratory database.

An imported case was defined as:

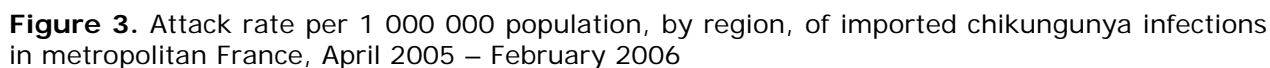
- detection of IgM antibodies against chikungunya virus and/or positive PCR, and/or positive viral culture,
- sampled in metropolitan France, whether or not the patient lives in metropolitan France.

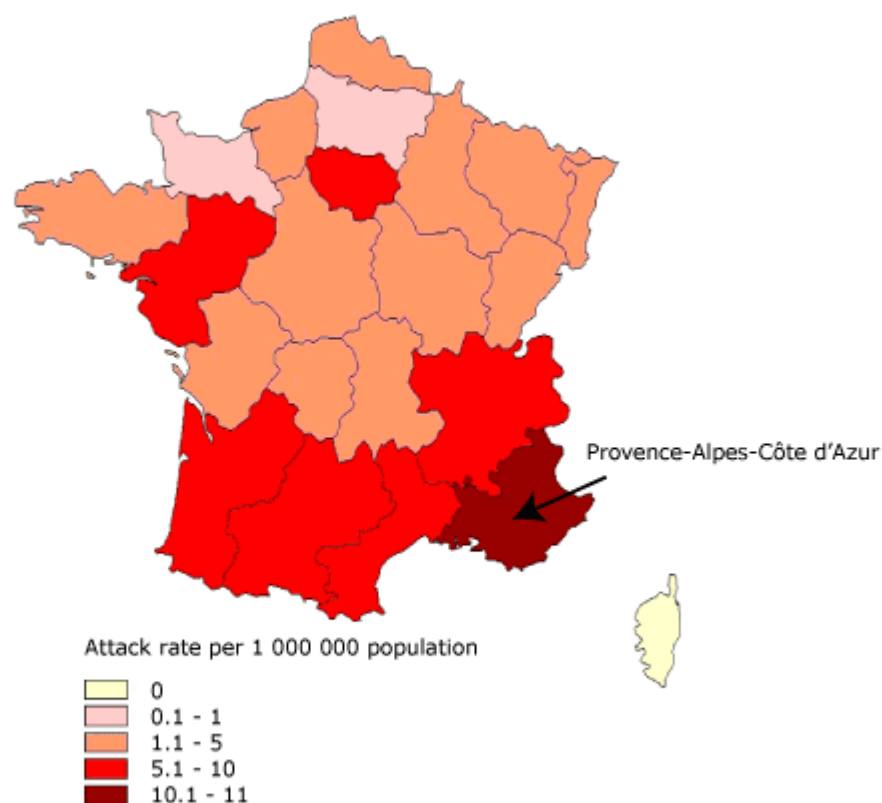
Results

From 1 April 2005 to 28 February 2006, 307 imported cases of chikungunya were identified in France. The mean patient age was 47 years (range: 7-81 years), and the male-female sex ratio was 0.8:1.

Between April and July 2005, an average of 20 imported cases was observed each month. These cases correspond to the outbreak in Comoros (over 5000 cases), and to the first peak of the Reunion outbreak (during week 19 of 2005). Incidence then decreased between August and November. The number of cases greatly increased in December 2005, particularly in the final week of that month, and 131 imported cases were identified in February 2006. This trend is similar to the epidemic curve of the Reunion outbreak where weekly incidence greatly increased at the end of December 2005 (Figures 1 and 2). Most of the cases imported to France have been in patients living in southeast France and the Paris region (Figure 3).

Figure 1. Temporal evolution of imported chikungunya infections into metropolitan France, by date of blood sample, April 2005 – February 2006





An autochthonous case was reported in metropolitan France in March 2006. A nurse developed chikungunya fever (laboratory confirmed) three days after caring for a patient with an imported infection. The nurse had never travelled to the Indian Ocean, and investigation of this case has concluded that there was a probable blood exposure incident. Previous incidents involving transmission of chikungunya virus during laboratory procedures have been described [2,3,4].

Discussion

Most of the imported cases are in patients living in the Provence-Alpes-Côte d'Azur region in southeast France, which is home to a large Comorian community, particularly in the city of Marseille. Members of the community frequently travel to Comoros.

The imported cases reported here have been collated from laboratory data. Because chikungunya infections may be asymptomatic or have only mild clinical symptoms, it is likely that many or most of the people who have been ill with chikungunya in metropolitan France have not visited a doctor, and have not had their infections laboratory confirmed. Information on date of illness onset in relation to date of return to France would be a better indication of whether any of these patients had been viraemic when in metropolitan France, and thus present a risk for autochthonous transmission.

While none of the imported cases have been reported to be serious, some residents of Reunion who have become seriously ill with chikungunya on the island have been transferred to hospitals in metropolitan France for care. These patients include, for example, those who needed liver transplants to treat fulminant hepatitis (acute liver failure)

References:

1. Editorial team, Pfeffer M, Loescher T. Cases of chikungunya imported into Europe. Eurosurveillance 2006; 11(3): 060316. (<http://www.eurosurveillance.org/ew/2006/060316.asp#2>)
2. Shah KV, Baron S. Laboratory infection with chikungunya virus: a case report. Indian J Med Res. 1965 Jul;53(7):610-3.
3. Ramachandra RT, Singh KRP, Pavri KM. Laboratory transmission of an Indian strain of Chikungunya virus. Current Sci 1964; 33: 235-236.

4. Public Health Agency of Canada [homepage on the Internet]. MATERIAL SAFETY DATA SHEET - INFECTIOUS SUBSTANCES. Chikungunya virus. Last updated 23 April 2001. (<http://www.phac-aspc.gc.ca/msds-ftss/msds172e.html>)