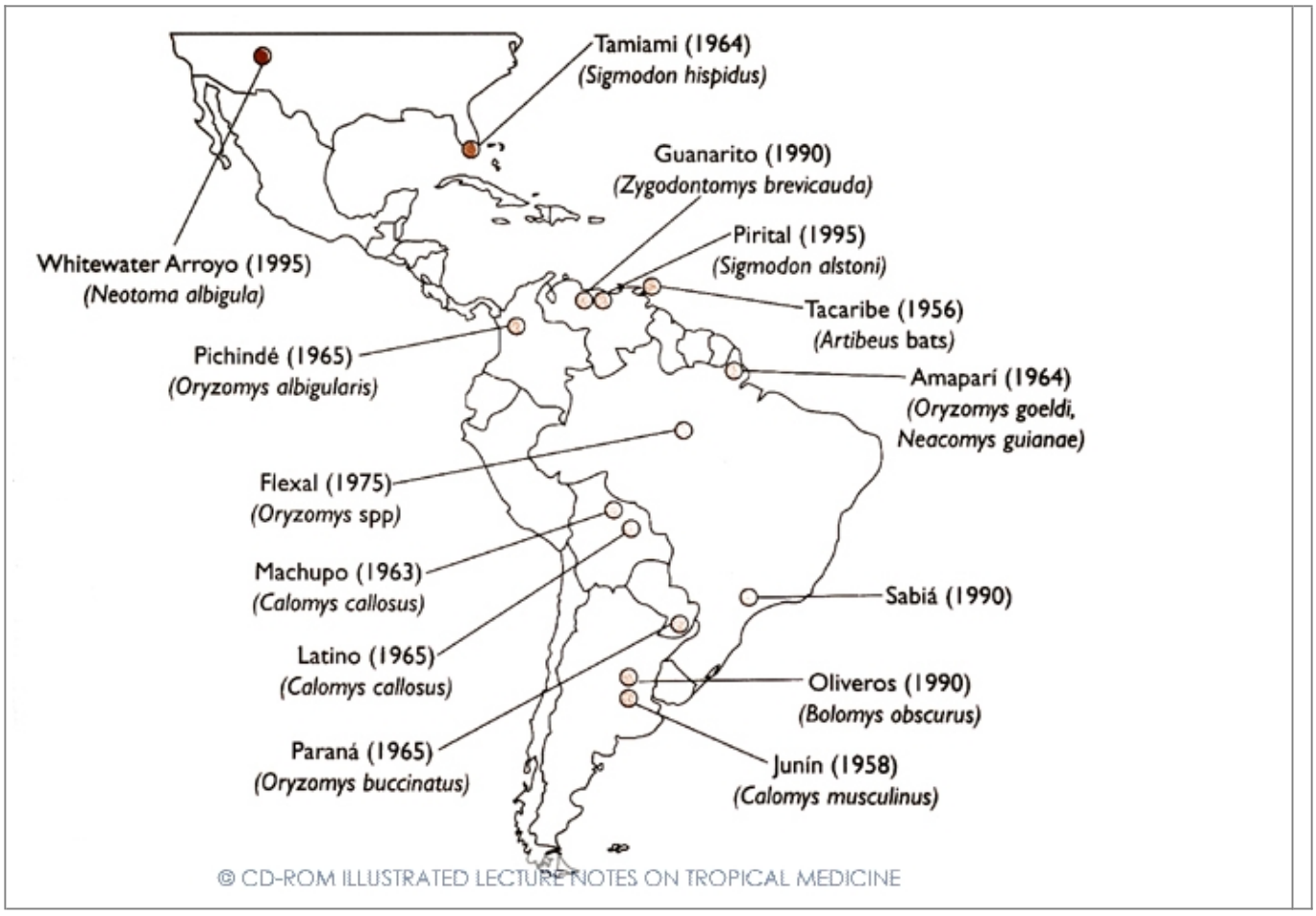
General

There are at least 16 arenaviruses in the New World, but most of these are not pathogenic for humans. Junin and Machupo virus occur in South America. The viruses were named after places in Argentina and Bolivia. Guanarito virus causes Venezuelan haemorrhagic fever. Sabia virus causes Brazilian haemorrhagic fever. In North America in 1970 the apathogenic Tamiami virus was found in cotton rats in Florida, but otherwise it was thought that arenaviruses did not occur in North America. In 1996 Whitewater Arroyo virus was identified in the USA. The name refers to a place in the state of New Mexico. It was not known at the time whether this virus was pathogenic or not. In 2000 several people became infected with this virus, with serious consequences. Bear Canyon virus is a third North American arenavirus, the pathogenic capacity of which is to date still unknown.



Map Arenavirusses – New World. Copyright ITM

Transmission

Transmission of Junin and Machupo virus is via rodents (*Calomys musculinus* and *Calomys callosus* respectively) which live in the fields (not peridomestic). Female rodents infected neonatally with Junin or Machupo virus are subfertile. Infection is via inhalation of swirling dust containing dried rodent urine (aerogenic transmission). Infection with Junin virus is seasonal and shows a peak during the harvest in autumn. *Calomys musculinus* has a preference for linear habitats, e.g. hedges and roadsides. *Calomys callosus* prefers to live in open fields. An outbreak of 1963-64 with 637 cases and 113 deaths was due to a proliferation of the rodents in a Bolivian town. Transmission was stopped by catching or killing the rodents. Many children all over the country gave their pet cats in an emotional gesture to help catch the rodents.

Clinical aspect

Machupo and Junin viruses cause similar clinical pictures. Initially there is a rather slow onset of unspecific malaise and fever, muscle pain, conjunctivitis, nausea, vomiting and sometimes photophobia. Unlike Lassa fever, pharyngitis is not pronounced. Enlarged lymph nodes and pronounced erythema of the face, neck and thorax are common. Thrombocytopenia, leukopenia and albuminuria are generally present. Chest X-ray is usually normal. Machupo and Guanarito virus infections often cause neurological symptoms. Haemorrhage and shock herald a poor prognosis. Whitewater Arroyo virus causes high fever, liver problems, internal haemorrhage and possibly death. Only a few cases of Sabia virus infection have been documented.

Treatment

Physical protection of doctors and nurses is necessary (barrier nursing). Good results have been described with convalescent plasma from survivors, especially if this is administered early. Ribavirin is active in vitro against all arenaviruses. The penetration of ribavirin into the cerebrospinal fluid is very low. Salicylates and intramuscular injections should be avoided. Thrombocytes should be transfused in case of severe thrombocytopenia. In view of the heightened vascular permeability, caution is advised with IV fluid (risk of pulmonary

oedema).

Prevention

Sometimes high-risk persons are given ribavirin preventively for two weeks (1.2 g daily PO).