

1.4. Leptospirosis

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1.4.1. Leptospirosis

Leptospirosis or Weill's disease is a disease caused by *Leptospira interrogans sensu lato*, which is divided into more than 26 serogroups and more than 230 serovars. This aerobic mobile spirochete is able to survive for short times outside the host in a warm and humid environment (stagnant water, muddy soils). It endures mostly and for longer periods in host reservoirs, mainly rodents. After infection, a short bacteraemia is followed by the invasion of mainly kidneys and liver, in which leptospire can survive for years and can be intermittently excreted. Accidental hosts, infected through contact with contaminated water or soil (or by contact with infected animals) can develop mild flu-like symptoms. Fatal subacute kidney and or liver failure can also occur.

Laboratory tests

The standard serological test to detect leptospirosis is the microscopic agglutination test, which is sensitive and specific and allows a first identification at serogroup level. This test requires however the maintenance of a panel of reference strains, so only a limited number of laboratories are able to perform this assay. Other serological tests used are rapid agglutination tests and ELISAs, which perform well for a rapid detection, but are less specific. Isolation of the antigen is very difficult and laborious. Antigen detection is possible by immunofluorescence techniques and molecular techniques, but do not allow a typing at serogroup or serovar level.

1.4.2. Leptospirosis in animals

Data from the NRL indicate that in 2008-2009 *Leptospira* infections are only seldom diagnosed. The microscopic agglutination test of 429 cattle and 606 pig sera demonstrated about 10 samples positive in each animal species. However, in 371 horse sera tested, antibodies against serovars Australis, Pyrogenes and Grippotyphosa were found in 10,0%, 4,6% and 4,0% of the cases, respectively.

As in former years, very few samples from cattle and pigs were found positive in the MAT test at the NRL, AH in 2010: 98.9% of cattle sera (n= 164; mainly from artificial insemination centres, some diagnostic samples) and 99.0% of pig sera (n= 408; mainly samples for diagnostic reasons) were negative. In 25 of the 164 samples from horses however, mostly taken for diagnostic reasons, some antibodies against serovars Pyrogenes (8.5%) and Australis (5.5%) were detected. In dog serum samples taken for diagnostic reasons or at the occasion of travel, the MAT assay was shown positive against *L. Australis* in 8.0% of the 462 samples.

Similar figures were found in 2011: almost all cattle (n= 286) and pig sera (n= 220) were negative in MAT (both 98.6%), whereas this figure was 71.9% in horse samples (n= 234). In this animal species serum agglutination was detected against *L. Australis*, *L. Pyrogenes* and *L. Grippotyphosa* (9.1%, 5.1% and 8.1 %, respectively). In 11.7% of the dog samples MAT antibodies against *L. Australis* were detected (540 serum samples tested).

1.4.3. Leptospirosis in humans

In 2010, the Institute of Tropical Medicine (NRL) examined a total of 644 human sera for the presence of antibodies to *Leptospira* by the microscopic agglutination technique (MAT).

Seven confirmed cases have been diagnosed. All but one patients were men. The median age of the patients was 34.6 (range 22-46). Four patients were exposed in Belgium, one during a stay in Laos/Cambodja/Myanmar. The country of exposition of the two remaining patients was not known.

In 2011, a total of 735 human sera have been examined by the NRL for the presence of antibodies to *Leptospira* by MAT. Fifteen confirmed cases of leptospirosis have been diagnosed. Twelve (80%) of the patients were men. The median age of the patients was 42 (range 23-62). Six patients were exposed in Belgium through water contact. Seven other patients contracted their infection abroad (Burkina Faso, Peru (2), Thailand, Panama, Brazil, Martinique). The country of exposition of the two remaining patients was not known.