Weil’s Disease (or Leptospirosis)

This factsheet has been produced to alert BISHTA members to the potential dangers of working in water that may be contaminated, e.g. stagnant water lying on the solid base underneath the hot tub, where rats have been found to be living in the warm empty space. The factsheet covers the background to the disease and what to do if you become unwell and please remember that Weil’s Disease is a reportable incident under RIDDOR.

Leptospirosis

Weil’s disease (also known as Leptospirosis) is a disease caused by spirochaetes of the genus Leptospira that affects humans and a wide range of animals, including mammals, birds, amphibians, and reptiles. The disease was first described by Adolf Weil in 1886 when he reported an “acute infectious disease with enlargement of spleen, jaundice and nephritis”. The disease can be fatal and around 9 people in the whole population die from it each year in the UK. Leptospirosis is very easily killed by chlorine.

Causes

Leptospirosis is a relatively rare bacterial infection in humans, with the infection being commonly transmitted to humans by allowing water that has been contaminated by animal urine to come in contact with unhealed breaks in the skin, the eyes, or with the mucous membranes. Although rats, mice and moles are important primary hosts, a wide range of other mammals including dogs, deer, rabbits, hedgehogs, cows, sheep and certain marine mammals are able to carry and transmit the disease as secondary hosts. Dogs may lick the urine of an infected animal off the grass or soil, or drink from an infected puddle. There have been reports of “house dogs” contracting Leptospirosis apparently from licking the urine of infected mice that entered the house. There is a direct correlation between the amount of rainfall and the incidence of Leptospirosis.

Humans become infected through contact with water, food, or soil containing urine from these infected animals. This may happen by swallowing contaminated food or water, or through skin contact. The disease is not known to be spread from person to person and cases of bacterial dissemination in convalescence are extremely rare in humans. Leptospirosis can affect water-sport enthusiasts in specific areas, as prolonged immersion in water is known to promote the entry of the bacteria. Surfers and whitewater paddlers are at especially high risk in areas that have been shown to contain the bacteria, and can contract the disease by swallowing contaminated water, splashing contaminated water into their eyes or nose, or exposing open wounds to infected water. Approximately 4 canoeists die each year of this disease.
Symptoms

Leptospiral infection in humans causes a range of symptoms, and some infected persons may have no symptoms at all. Leptospirosis is a biphasic disease that begins with flu-like symptoms (fever, chills, myalgias, intense headache). The first phase resolves, and the patient is briefly asymptomatic until the second phase begins. This is characterised by meningitis, liver damage (causing jaundice), and renal failure. The infection is often wrongly diagnosed due to the wide range of symptoms. This leads to a lower registered number of cases than exists. Symptoms of Leptospirosis include high fever, severe headache, chills, muscle aches, and vomiting, and may include jaundice, red eyes, abdominal pain, diarrhea, and rash, the initial presentation may resemble pneumonia. The symptoms in humans appear after a 4 to 14 day incubation period.

Complications

Complications include meningitis, extreme fatigue, hearing loss, respiratory distress, azotemia, and renal interstitial tubular necrosis, which results in renal failure and often liver failure. Cardiovascular problems are also possible.

Diagnosis

On infection, the microorganism can be found in blood for the first 7 to 10 days and then moving to the kidneys. After 7 to 10 days the microorganism can be found in fresh urine, hence, early diagnostic efforts include testing a serum or blood sample.

Differential diagnosis list for Leptospirosis is very large due to diverse symptomatics. For forms with middle to high severity, the list includes dengue fever and other hemorrhagic fevers, hepatitis of various etiologies, viral meningitis, malaria, and typhoid fever. Light forms should be distinguished from influenza and other related viral diseases. Specific tests are a must for proper diagnosis of Leptospirosis.

Treatment

Leptospirosis treatment is a relatively complicated process and so medical support should be sought immediately. Treatment comprises two main components: suppressing the causative agent and fighting possible complications and so Antibiotics are very important.

Supportive therapy measures (especially in severe cases) include detoxification and normalization of the hydro-electrolytic balance. Glucose and salt solution infusions may be administered; dialysis is used in serious cases.

Advice to hot tub service engineers

Always verify the presence of residual free chlorine (or bromine) before servicing a hot tub. Gloves should be worn as protection, especially, if there is water outside the acrylic shell and even more importantly, if the engineer has any cuts or abrasions on their hands.

BISHTA reminds its members that no responsibility can be taken by BISHTA, its employees or agents in respect of any errors or omissions from this factsheet.

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