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Melioidosis **Fact Sheet**

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Melioidosis, the disease

Melioidosis, also called Whitmore's disease, is an infectious disease caused by the Gramnegative bacterium *Burkholderia pseudomallei*, which is an opportunistic pathogen.

Disease occurrence varies depending on location. The disease is hyperendemic in Malaysia, Thailand, Singapore and northern Australia, while Sri Lanka is also increasingly recognised as an emerging hotspot for melioidosis.

Transmission

For melioidosis, transmission usually occurs through contact with contaminated soil or water through overt or apparent skin wounds, inhalation of soil dust and aspiration or ingestion of contaminated water.

Various animal species are susceptible to melioidosis, including: Sheep, Goats, Swine, Horses, Cats, Dogs, Cattle and Monkeys. The causative bacterium is an obligate mammalian zoonotic pathogen which can survive for only a short period in the environment. Direct zoonotic transmission from animals to humans is not known to occur.

Person-to-person transmission

Person-to-person transmission is extremely rare but has occurred through direct or sexual contact in 3 reported cases.

Risk groups

Up to 80 % of adult cases have a predisposing medical condition such as diabetes, cirrhosis, alcoholism, chronic renal disease, chronic lung disease, thalassemia, malignancy and glucocorticoid treatment or other non–HIV–related immune suppression.

Clinical features

Melioidosis, caused by *Burkholderia pseudomallei*, can manifest with a wide range of clinical presentations, from subclinical infection to rapidly fatal septicaemia. Symptoms typically develop 1 to 4 weeks after exposure. Infections can be localised or disseminated, and both acute and chronic forms may lead to systemic involvement. Subclinical infections are also possible.

Localised infection generally presents as an ulcer, nodule, or skin abscess, often resulting from inoculation through a break in the skin. Patients usually experience fever and generalised muscle aches (myalgias). Although the infection may remain confined to the site of inoculation, it can progress through the bloodstream and lead to more widespread disease.

Pulmonary involvement is the most common presentation of melioidosis. It can range from mild bronchitis to severe pneumonia. The onset is typically characterised by high fever, chest pain, headache, anorexia, and generalised muscle soreness. A cough, which may be either nonproductive or productive, is considered the hallmark feature of pulmonary melioidosis. Chest radiographs may reveal lesions resembling those observed in pulmonary tuberculosis.

Both chronic and acute melioidosis can progress to disseminated infection, and rapid-onset septicaemia may occur, particularly in individuals with underlying risk factors such as diabetes mellitus and renal insufficiency. Disseminated infection is characterised by the formation of abscesses in various organs, most notably in the liver, spleen, and prostate, although the joints, bones, lymph nodes, skin, brain, and other viscera may also be involved. Clinical features of disseminated or bloodstream infection include fever, headache, respiratory distress, abdominal or chest discomfort, generalised muscle aches, and disorientation. Disseminated melioidosis may or may not be associated with sepsis and can present in either acute or chronic forms.

Diagnosis

Melioidosis is diagnosed by isolating *Burkholderia pseudomallei* from blood, urine, sputum, throat swabs, skin lesions, or abscesses; or by detecting an antibody response to the bacteria.

Incubation period

It ranges from 1-21 days with a mean of 9 days and can be as short as a few hours with high inoculum. However, for Melioidosis, years may elapse between presumed exposure and the appearance of clinical disease.

Treatment

When a melioidosis infection is diagnosed, the disease can be treated with the use of appropriate medication.

The type of infection and the course of treatment will impact long-term outcome. Treatment generally starts with intravenous (via a vein) antimicrobial therapy for 10-14 days, followed by 3-6 months of oral antimicrobial therapy.

Antimicrobial agents that have been effective against melioidosis include: Intravenous therapy of Ceftazidime administered every 6-8 hours, or Meropenem administered every 8 hours.

Oral antimicrobial therapy consists of: Trimethoprim-sulfamethoxazole taken every 12 hours, or Doxycycline taken every 12 hours.

Patients with penicillin allergies should notify their doctor, who can prescribe an alternative treatment course.

Prevention

In areas where melioidosis is widespread, contact with contaminated soil or water poses a risk to individuals. As global weather patterns change, with more frequent severe weather events and increased flooding, we may observe more clusters of melioidosis cases. Physicians in tropical regions must remain vigilant due to the high mortality rate associated with melioidosis in such settings. Primary prevention of melioidosis is challenging due to the saprophytic nature of *Burkholderia pseudomallei* and the frequent flooding during the rainy season.

However, in these areas, certain groups can take measures to minimise the risk of exposure:

• Individuals with open skin wounds, diabetes, or chronic renal disease are at increased risk for melioidosis and should avoid contact with soil and standing water.

• In endemic areas, skin lacerations, abrasions, or burns that have been contaminated with soil or surface water should be immediately and thoroughly cleaned.