

Abstract

Introduction

Melioidosis is a bacterial infection with endemicity in tropical countries, but the true burden is not well known, making it a silent killer. The natural reservoir being the soil, makes it a disease of soil-associated occupations. The incidence is higher among people with co-morbidities such as diabetes mellitus. Diagnosis and early treatment are crucial to reduce morbidity, but require improvement in the laboratory facilities and clinical awareness.

Objective

This study was conducted to determine the melioidosis culture-positive rate in different types of specimens received for bacterial culture, clinical presentation, associated factors, antibody response, and outcome of culture-positive melioidosis patients.

Method

An observational, descriptive, cross-sectional study with an analytical component was conducted on 65 culture-positive melioidosis patients at Teaching Hospital, Kurunegala diagnosed between 2021 to 2024. Laboratory data and patient information were collected from hospital records. Data on weather patterns over the study period were obtained from the Meteorological Department. Data were analyzed using SPSS 23.0, descriptive and inferential statistics (chi-square test, t tests, correlational coefficients, and multivariate regression as appropriate), considering 0.05 as the statistically significant.

Results

The median age of the sample was 49.5 years (SD=13.37) and ranged from 09 months to 88 years. A higher incidence was seen among males (76.9%), rural settings (93.8%), farmers (52.3%), and in those who had diabetes mellitus (73.8%). Melioidosis presented as pneumonia in 12% and as pyrexia of unknown origin in 6.2%. Septic arthritis was a

common presentation. Ultrasound examination of the abdomen in the majority of patients did not reveal any abnormality (76.9%), while splenic and liver pathology were detected in 12.3% and 7.8%, respectively. The case fatality rate was 10.8%.

Antibody titers in acute and chronic patients were not significantly different ($P>0.05$). Correlation of melioidosis cases with weather was positive for rainfall ($r=0.24$, $p>0.05$), negative for temperature (maximum temperature; $r=-0.30$, $p=0.06$, and for minimum temperature; $r=-0.23$), positive (+0.21) and negative (-0.28) for minimum and maximum relative humidity, respectively and negative for minimum and maximum wind speeds. (-0.217 and -0.047). The regression model, including the weather patterns, significantly explained the variability of the incidence of melioidosis cases by 46% ($R^2=0.46$, $p=0.006$). Humidity levels were a significant independent risk factor for melioidosis ($p<0.01$).

Conclusion and recommendations

Melioidosis is a disease with a high burden of mortality and morbidity. The Sri Lankan population has most of the risk factors, such as tropical weather patterns, an agricultural economy, and increasing non-communicable diseases. Thus, increasing awareness among clinicians regarding melioidosis and providing clear diagnostic and treatment guidelines are crucial and should be combined with primary and secondary preventive measures.