EDITORIAL

Melioidosis—Commonly Missed, Yet Not Uncommon and Eminently Treatable

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Melioidosis, caused by the gram-negative bacillus *Burkholderia pseudomallei* is considered a re-emerging infectious disease. Rather than being thought of as an exotic tropical entity acquired in rice-farming areas and seen only in Southeast Asia, the disease has been increasingly diagnosed in many parts of the world: India is no exception and Indian clinicians encounter this disease in a wide variety of practice settings.

It is believed that melioidosis exists in all tropical areas and continents as the soil in wet and humid areas supports the growth of this organism and the disease is considered to be severely under-reported with as many as 89,000 deaths annually worldwide.[1] The authors report clustering in the rainy season consistent with the propensity of this soil-dwelling organism to cause disease whenever the usual ecology is disturbed by extreme weather events, such as heavy rainfall[2] and tsunamis.[3] Climate change may result in more such extreme weather events and global warming may expand the ecological niches that support the growth of the organism with a consequent increase in the prevalence and range of distribution of melioidosis.[4]

The article by Ganesan et al. in this issue of the journal[5] reiterates many of the classical features of this entity.[6] All cases were confirmed on culture attesting to the ease, with which the diagnosis can be confirmed using conventional bacteriological methods: in fact, the diagnosis is missed on account of failure to consider the diagnosis rather than an absence of laboratory support. Fortunately, the practice of identifying all lactose non-fermenting gram-negative bacilli to the genus and species level is now standard practice in most microbiology laboratories.

Most patients were diabetics as in earlier studies: indeed, the increase in the prevalence of diabetes mellitus in the Indian population may be fueling a concomitant increase in melioidosis. Increased life expectancy with its concomitant comorbidities and immunosenescence is also thought to contribute to the increased worldwide burden of the disease. Other risk factors, such as alcoholism and chronic renal failure, have also been well documented in the literature.

Acute septicemic melioidosis had a higher mortality rate than nonbacteremic cases and was the clinical presentation in the majority with positive blood cultures in most reiterating the importance of sending adequate blood cultures (typically two sets consisting of four bottles with 10 mL of blood in each bottle in adults) before starting antibiotics in patients with septic shock. The authors also encountered visceral abscesses, necrotizing pneumonia, and bone and joint infections in all typical sites of disease: the organism is readily cultured from samples taken from the sites of infection.

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Apart from acute presentations as in the article by Ganesan et al., there are numerous chronic presentations as the organism has the ability to remain dormant after infection and reactivate (much like tuberculosis) much later. Necrotizing lymphadenitis and parotid abscess were reported by the authors, but much more chronic presentations sometimes indistinguishable from pulmonary tuberculosis or chronic focal bacterial infections are well known and require clinical suspicion and culture for diagnosis.

Given the high prevalence of extended-spectrum beta-lactamase-producing *Enterobacteriaceae* in India, Indian guidelines recommend that all patients in septic shock receive a carbapenem as part of their empiric antimicrobial regimen after drawing cultures.[7] This practice will also cover *B. pseudomallei* as well as hypermucoviscous/hypervirulent *Klebsiella*, another emerging entity that can present similar to melioidosis with visceral abscesses and necrotizing pneumonia.[8] The average time reported by the authors for identification of the organism of 6.5 days is unduly long: many centers in India have access to techniques that rapidly identify the organisms directly from blood culture, such as matrix-assisted laser desorption ionization–time of flight and can identify the organism within 12 hours of a flagged blood culture. Early identification would facilitate early appropriate antimicrobial therapy as antimicrobial resistance is not a major problem with *B. pseudomallei*. Once confirmed on culture, carbapenems can be de-escalated to ceftazidime, which is an equally efficacious narrow-spectrum drug. The authors report adverse outcomes in as many as 40% of their cohort, higher than previously reported from our center.[6] After intravenous treatment for at least 10 days, it is important to finish treatment with a maintenance phase, without which there are high rates of relapse: monotherapy with co-trimoxazole for 3 months is as good as a therapy for 5 months[9] or combination therapy with doxycycline.[10]

In conclusion, it would be a wise practice for the intensivists to always consider the diagnosis of melioidosis in all patients with undifferentiated septic shock, focal abscesses, and severe community-acquired or necrotizing pneumonia. Culturing adequate volumes of blood before giving antibiotics and obtaining cultures from the clinically involved sites facilitates the diagnosis. Empiric therapy should always include a carbapenem till the diagnosis is excluded or confirmed and appropriate management usually leads to an extremely satisfactory outcome.

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