

Septicaemic melioidosis in a tertiary care hospital in south India

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Background & objectives: Melioidosis and the causative organism *Burkholderia pseudomallei* are being recognized gradually in various centres in India. In the septicaemic form, melioidosis is a serious and life threatening condition which requires early detection and specific treatment to avoid case fatality. A review of patients with septicaemic melioidosis at a tertiary care hospital in south India was carried out with a view to define the clinical features, predisposing conditions, if any, and the outcome.

Methods: A total of 28 patients with culture proven septicaemic melioidosis during December 1993 to December 2002 were included. Information on clinical details and outcome was obtained and antibiotic susceptibility of the isolates studied.

Results: Of the 28 patients of blood culture proven septicaemic melioidosis, the organism was also isolated from pus in two patients. The presenting clinical features were varied, most presenting as pyrexia of unknown origin or visceral abscesses, or septic arthritis. Associated/predisposing conditions were present in 50 per cent of the patients, and diabetes mellitus was the commonest one. The mortality was 58 per cent in our series.

Interpretation & conclusion: Melioidosis is an emerging infection in India. The magnitude of the problem can only be assessed by increasing awareness, both of its existence in the clinical setting and its identification in the laboratory.

Key words Blood culture - *Burkholderia pseudomallei* - septicaemic melioidosis

Melioidosis has only recently been recognized in India. The causative bacterium, *B. pseudomallei* is a soil saprophyte, geographically restricted to certain regions of the world. Prior to 1992 there was only indirect evidence of its presence in India. When melioidosis was diagnosed in two foreigners, one in Scotland and the other in Germany, it was concluded that they had acquired the infection while travelling or working earlier in central or southern India^{1,2}. In 1991, culture-proven melioidosis was reported in a child resident in Dapoli Taluka in Maharashtra³. Since December 1993, when we first recognized *B. pseudomallei* in culture in our laboratory, we

have confirmed melioidosis in a number of patients with a variety of clinical presentations⁴⁻⁸.

The most serious form of the active infection is an acute septicaemic illness which has a high mortality rate. The organism is usually resistant to a variety of antimicrobial agents and the choice of the correct antibiotic depends on the identification of the microbe. The illness is life-threatening and the correct diagnosis and treatment are essential for patient survival. In this paper we review the microbiological, clinical and epidemiological observations in patients with septicaemic

melioidosis, confirmed by the isolation of organisms from blood culture.

Material & Methods

This study initially retrospective, has been carried out in a prospective manner over the past seven years at the Department of Clinical Microbiology, Christian Medical College & Hospital, Vellore.

All blood culture *B. pseudomallei* positive patients (28) seen during the period December 1993 till December 2002 were included. A conventional method of blood culture was followed as described earlier⁹ but during 2001 and 2002 the MINIVITAL automation system (BioMerieux, India Private Limited, Secunderabad) was in use. Standard methods were followed for identification of the organism¹⁰. All isolates were serologically confirmed using polyclonal antiserum raised in the laboratory in rabbits.

The patients' records were studied using a proforma and information on age, sex, occupation, State of origin, clinical details and outcome in terms of fever defervescence, recovery, death collected.

Antibiotic susceptibility testing was carried out by the disc diffusion method using standard procedures¹¹ with the following discs (concentration µg/disc) ampicillin (10), cefotaxime (30), ceftazidime (30), gentamicin (10), ciprofloxacin (5), cotrimoxazole (25), imipenem (10).

Results & Discussion

During the study period, 98,369 samples were received in the Department for blood cultures of which 30 cultures from 28 patients grew *B. pseudomallei*. A total of 40 isolates of *B. pseudomallei* were obtained, 28 were from blood, 8 from pus, 3 from synovial fluid specimens and one from sputum.

Although we had isolated the organism from various clinical specimens in both male and female patients, the blood isolates were only from men. In two patients the organism was isolated from pus as well as blood.

The age of patients in whom this organism was isolated from blood ranged from 9 to 65 yr (mean \pm SD, 44.67 \pm 8.55). Although melioidosis has been reported to be associated with certain occupations such as rice farming and cattle farming¹², there was no significant association with any one occupation(s) in our series.

We analysed the distribution of patients according to the State of origin and found that patients came from all the Indian states the maximum (10) being from Tamil Nadu where our hospital is located.

Most (16) patients presented with pyrexia of unknown origin (PUO) and serological, haematological, radiological investigations did not indicate any etiology; a routine blood culture grew *B. pseudomallei*. Visceral abscesses in the spleen and the liver with fever was the presenting finding in five patients, pleural cavity in one patient and septic arthritis (knee joint/ankle joint) in three patients. Two patients had chronic renal failure and were on haemodialysis and awaiting transplant and one was a post renal transplant recipient.

Associated/predisposing conditions were present in 12 of the 28 patients. These were leukemia (2), renal failure (3), and diabetes mellitus (8). One patient had diabetes mellitus and renal failure. The mortality in our series was 58 per cent.

Study of the antibiotic susceptibility pattern (AST) of these isolates showed that all were susceptible to ceftazidime, cotrimoxazole and imipenem and resistant to ampicillin and gentamicin. Susceptibility to ciprofloxacin was observed in 44 per cent of the strains; with regard to cefotaxime 69 per cent were susceptible and 31 per cent in the intermediate range. Based on a confirmed culture and AST report, parenteral ceftazidime was administered as recommended¹³ followed by cotrimoxazole for 12 wk. In the patients who recovered, response to treatment in terms of average time taken for defervescence of fever varied (mean \pm SD, 12.0 \pm 11.2 day). In the northern region of Thailand melioidosis is the commonest form of septicaemic illness¹⁴. It is also a common cause of septicaemia in Malaysia and is accompanied by a fairly high mortality¹⁵. It is important to record the

presence of this infection in different parts of India; this information will help in focusing attention on this particular etiological agent. That the prevalence of this infection is under-recognised in India may be surmised from the paucity of reports from centers in India. Information on its geographic prevalence and clinical features will help in raising the 'index of suspicion' of melioidosis in the minds of physicians when they encounter septicaemic disease, especially in the presence of predisposing factors.

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