Characteristics and Laboratory Examinations of 57 Patients with Mycobacterium Bacteremia

Sainan Bian1, Yuequi Zhang1, Lifen Zhang1,2, Qiwen Yang3, Peng Wang3, Yingchun Xu3, Xiaoqing Liu1,2
1. Infectious Diseases Division, Peking Union Medical College Hospital, Chinese Academy of Medical Science, Beijing 100730, China
2. Clinical Epidemiology Unit, International Epidemiology Network, Peking Union Medical College Hospital, Chinese Academy of Medical Science, Beijing 100730, China
3. Laboratory Department, Peking Union Medical College Hospital, Chinese Academy of Medical Science, Beijing 100730, China
*Correspondence: Xiaoqing Liu, E-mail: liuxq@126.com

Background:
To study the clinical characteristics and laboratory evaluation of patients with mycobacterium bacteremia.

Methods:
We retrospectively analyzed the clinical record of 57 inpatients with mycobacterium bacteremia from January 2004 to May 2014.

Results:
27(47.4%) were males and 30(52.6%) were females. The median age was 45 years old, (IQR 27~57). 50 (87.7%) were Mycobacterium tuberculosis(MTB) bacteremia, 7 (12.5%) were non-tuberculosis mycobacterium(NTM) bacteremia, with 1 mycobacterium intracellulare, 1 mycobacterium fortuitum and 1 mycobacterium kansasii. 36 patients (63.2%) were immunocompromised, with underlying conditions including HIV infection, rheumatic diseases, tumor, and treatment of glucocorticoids or immunosuppressants. The main clinical manifestations were fever (98.2%), night sweats(71.9%), weight loss (71.9%) and cough, sputum (45.6%). The median time from fever to diagnosis was 8 weeks (IQR 5~15).

Among the 50 patients with MTB bacteremia, 29 (58%) had pulmonary tuberculosis, 7 (14%) had central nervous system (CNS) tuberculosis, 5 (10%) had tuberculosis serosisis. The median leukocyte level was 3.80*10^9/L, (IQR 1.43~13.62); median lymphocyte was 0.36*10^9/L, (IQR 0.22~0.77); median CD4 count was 115/mm3,(IQR 77~230).28/42 patients (66.7%) had positive T-SPOT.TB results. The median spot was 556SFC/10^6PBMC,(IQR 112~1704). T-SPOT.TB results were shown in the table.

Conclusions:
In this group of patients, multiple organs involve was common, diagnosis time was long and the prognosis was generally poor. Mycobacterium bacteremia should be suspected for patients with peak temperature above 39 °C, and with pulmonary, CNS, serous or other organs involved, especially in immunosuppressive status. Multiple blood cultures is the key to diagnosis. The sensitivity of T-SPOT.TB was high in patients with CD4 count higher than 200/mm3, while low in patients with CD4 count lower than 100/mm3.

| CD4<100/mm3(n=10) | T-SPOT.TB(+) (n,%): 4(40) | T-SPOT.TB(-) (n,%): 6(60) |
| CD4 100-200/mm3(n=11) | T-SPOT.TB(+) (n,%): 8(72.7) | T-SPOT.TB(-) (n,%): 3(27.3) |
| CD4>200/mm3(n=6) | T-SPOT.TB(+) (n,%): 6(100) | T-SPOT.TB(-) (n,%): 0(0) |
| LY<500/mm3(n=22) | T-SPOT.TB(+) (n,%): 11(50) | T-SPOT.TB(-) (n,%): 11(50) |
| LY> 500/mm3(n=20) | T-SPOT.TB(+) (n,%): 17(85) | T-SPOT.TB(-) (n,%): 3(15) |

Supported by grants from the National Major Science and Technology Research Projects for the Control and Prevention of Major Infectious Diseases in China,2014ZX10003003,and Health Research & Special Projects Grant,201402001.