Abstract

Melioidosis is an emerging disease in gobal, can lead to patients with serious and fatal infection. However, the spreading and prevalence of this disease is not clear in Taiwan. The aim of this project was to develop a serological method for detecting the specific antibodies to melioidosis, and then to survey the prevalence of seropositivity from healthy adults in Taiwan. Firstly, fliD (capping protein of flagella; including Cap1 and Cap2) exhibits, using bioinfomatic analysis, highly specificity and antigenicity. In particularly, cap2 protein is potential target for distinguishing between *B. pseudomallei* and *B. thailandensis* (mostly source of interference in serological test for melioidosis). Both cap1 and cap2 protein genes were cloned, expressed and their products were purified. These purified proteins as antigenic target were examed the opitimal coating concentration to be 0.5 μg/ml (cap1) and 1 μg/mL (cap2) for developing an indirect ELISA. The cutoff values were also determined to be 1:32 in both cap1 and cap2 as antigenic targets. The sensitivity was shown to be 75% and 81%, and the specificity was shown to be 71% and 92% in which cap1 and cap2 protein was respectively used as antigenic target. The cap2 protein was still suggested to be used as antigenic target for distinguish between *B. pseudomallei* and *B. thailandensis* although both specificity and sensitivity were not comfatable, compared as when fliC was used as antigen, with 93.8% of sensitivity and 96.5% of specificity, in previously. Furthermore, the seroprevalence of anti-flagellin antibodies was survey for serum samples collected from hospitals in northern, central and southern Taiwan. Results indicated that seropositivity was 2.5-5% amongsts of these geographical distributions. No certain areas or disease population exhibited to be hyperprevalent. Thus, Taiwan is not included to endemic areas. However, the 3.0 % seropositivity rate highlights the need for physicians managing these patients in Taiwan to be aware of the possibility of community-acquired pneumonia and sepsis arising from *B. pseudomallei* infection.

Key words: melioidosis, capping protein, seroprevalence