Detectiing Mycobacterium Tuberculosis in BACTEC MGIT 960 Cultures by COBAS AMPLICOR MTB in Routine Clinical Practice

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摘要

快速、自動的結核菌培養偵測系統BACTEC MGIT 960已在台灣廣爲應用；然而，目前非結核性分枝桿菌在臨床實驗室的高分離率也造成診斷上的困擾。此研究主要目的爲評估COBAS AMPLICOR MTB在BACTEC MGIT 960陽性檢體的臨床應用。研究方法：從2006年3月1日到2007年2月28日共有270個BACTEC MGIT 960陽性檢体在台北醫學大學・萬芳醫院進行COBAS AMPLICOR MTB檢驗，並與傳統生化菌株鑑定的結果進行比較。結果：207(76.7%)個COBAS AMPLICOR MTB檢驗有決定性結論，63（3株爲結核菌，60株爲非結核性分枝桿菌）個檢驗無決定性結論。在176個結果爲陽性者，174個檢驗爲真陽性，2個檢驗爲僞陽性。在31個結果爲陰性者，30個檢驗爲真陰性，1個檢驗爲僞陰性。若不考慮檢驗結果爲無決定性結論者，此項應用的敏感性、特異性、陽性預測值與陰性預測值分別爲99%、94%、99%及97%。結論：COBAS AMPLICOR MTB可能適合作爲BACTEC MGIT 960陽性檢體快速偵測及鑑定結核菌的檢驗工具。

Abstract

Introduction: The rapid, automated cultivation and detection system, BACTEC MGIT 960, is widely used in Taiwan. But the high nontuberculous mycobacteria (NTM) isolation rate is a concern that should be carefully evaluated. The aim of this study was to evaluate the ability of the commercial COBAS AMPLICOR MTB amplification system to identify Mycobacterium tuberculosis (M. tuberculosis) in positive BACTEC MGIT 960 cultures in routine clinical practice. Methods: We

tested 270 positive BACTEC MGIT 960 cultures with the COBAS AMPLICOR MTB at Taipei Medical University-Wan Fang Hospital from March 1, 2006 through February 28, 2007. The COBAS AMPLICOR MTB results were compared with mycobacterial species identification by conventional biochemical testing. Results: We found that 207 (76.7%) COBAS AMPLICOR MTB results were regarded as conclusive, and 63 (3 M. tuberculosis, 60 NTM) inconclusive. Among 176 conclusive results positive for M. tuberculosis, 174 were regarded as true positive and 2 false positive. Among 31 conclusive results negative for M. tuberculosis, 30 were regarded as true negative and 1 false negative. After excluding the inconclusive results, we further found that the sensitivity, specificity, and positive/negative predictive values of the COBAS AMPLICOR MTB test were 99, 94, 99, and 97%, respectively. Conclusion: COBAS AMPLICOR MTB might be suitable for rapid detection and identification of M. tuberculosis in BACTEC MGIT 960 cultures in routine clinical practice.