

Perbandingan cross priming amplification CPA dan PCR konvensional laboratorium mikrobiologi klinik FKUI untuk deteksi M tuberculosis pada sputum pasien tersangka TB paru tanpa dan dengan HIV/AIDS = Comparison of cross priming amplification CPA and conventional PCR of clinical microbiology FKUI in detection of M tuberculosis in sputum of suspected pulmonary TB patient non HIV/AIDS and HIV/AIDS

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Abstrak

[ABSTRAK

Latar belakang: Diagnosis tuberkulosis (TB), khususnya pada pasien HIV masih merupakan masalah tersendiri, terutama pada daerah dengan sumber daya terbatas. Pemeriksaan mikroskopis hapusan bakteri tahan asam (BTA) merupakan metode yang sederhana dan cepat tetapi hanya mendeteksi 30% -40% kasus Tb sedangkan kultur (baku emas) membutuhkan waktu pemeriksaan yang berminggu-minggu. Metode genotipe (PCR dan isothermal amplification) memiliki sensitivitas yang tinggi dan kerjanya cepat tetapi metode ini masih sangat kompleks dan membutuhkan peralatan khusus. Cross-priming amplification (CPA) merupakan metode amplifikasi DNA secara isothermal dengan menggunakan multiprimer dan enzim polymerase dengan tehnik pembacaan hasil amplifikasi yang sederhana. Tujuan: Penelitian ini bertujuan untuk mengetahui perbedaan CPA dan PCR TB LMK FKUI dalam mendeteksi M. tuberculosis pada sputum pasien tersangka TB tanpa/dengan HIV Metode: 20 sputum pasien non-HIV tersangka TB dan 37 sputum pasien HIV tersangka TB diperiksa dengan CPA dan PCR TB LMK FKUI. Hasil: Semua yang terdeteksi positif dengan CPA juga dideteksi positif oleh PCR tetapi 20% hasil yang terdeteksi negatif oleh CPA terdeteksi sebagai positif di PCR dan semua yang terdeteksi negatif oleh PCR terdeteksi negatif juga di CPA sedangkan hasil negatif di CPA (20%) masih terdeteksi positif oleh PCR. Dalam mendeteksi M. tuberculosis pada sputum pasien HIV/AIDS tersangka TB paru Terdapat hubungan bermakna antara CPA dengan PCR TB LMK FKUI, hampir semua hasil positif oleh CPA (94.1%) juga dideteksi positif oleh PCR tetapi 30% hasil negatif oleh CPA terdeteksi sebagai positif oleh PCR dan hampir semua hasil negatif oleh PCR (93.3%) terdeteksi negatif juga oleh CPA. Kesimpulan: Terdapat hubungan bermakna antara CPA dan PCR TB LMK FKUI dalam mendeteksi M. tuberculosis pada sputum pasien tersangka TB paru. PCR TB LMK FKUI lebih sensitif dibanding CPA dalam mendeteksi M.tuberculosis.

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ABSTRACT

Background: The diagnosis tuberculosis (TB) especially in HIV patients remains a major obstacle to global control of TB, especially in resource limited settings. Light microscopy in sputum smears as common method in detection acid-fast bacilli (AFB) is specific but it only detects 30% to 40% of TB patients, while culture methods as gold standart in TB diagnostic require several weeks of incubation time. Genotypic method (polymerase chain reaction (PCR) and isothermal amplification) is known very sensitive and works fast but it requires special equipment and complex protocols in amplifying and detection amplified products. Cross-priming amplification (CPA) principle is isothermal amplification using multiple cross-linked primers (six to eight primers) and detection of amplified products is performed on special design plastic which is

easy to performed and identified. Objective: The study aimed to determine difference of PCR and CPA to detect M. tuberculosis in sputum specimens from suspected pulmonary tuberculosis without/with HIV patients. Methods: 20 sputum samples suspected pulmonary TB of non-HIV patients and 37 sputum samples suspected pulmonary TB of HIV patients were subjected to CPA and PCR TB LMK FKUI. Results: All samples which were positive by CPA were also PCR positive but 20% result that were CPA negative were still positive by PCR and all samples with PCR negative were negative detected by CPA while some samples that were negative by CPA were still positive detected by PCR (20%). In HIV/AIDS population, there were significant correlation between CPA and PCR TB LMK FKUI which all positive result of CPA (94.1%) were also PCR positive but 30% of CPA negative were still CPA positive and almost all of PCR negative (93.3%) were CPA negative. Conclusion: There were significant correlation between CPA and PCR TB LMK FKUI in detected of M.tuberculosis in sputum of suspected pulmonary TB in populations of non HIV/AIDS patients and HIV/AIDS patients.;Background: The diagnosis tuberculosis (TB) especially in HIV patients remains a major obstacle to global control of TB, especially in resource limited settings. Light microscopy in sputum smears as common method in detection acid-fast bacilli (AFB) is specific but it only detects 30% to 40% of TB patients, while culture methods as gold standart in TB diagnostic require several weeks of incubation time. Genotypic method (polymerase chain reaction (PCR) and isothermal amplification) is known very sensitive and works fast but it requires special equipment and complex protocols in amplifying and detection amplified products. Cross-priming amplification (CPA) principle is isothermal amplification using multiple cross-linked primers (six to eight primers) and detection of amplified products is performed on special design plastic which is easy to performed and identified.

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