Nilai diagnostik real time pcr tuberkulosis pada efusi pleura tersangka tuberkulosis dengan respon terapi atau kultur positif = Diagnostic value of real time pcr tuberculous on suspected tuberculous pleural effusion with positive response therapy or culture

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Abstrak

ABSTRACT
Kesulitan dalam penegakan diagnosis definitif efusi pleura tuberkulosis berdasarkan metode konvensional ataupun biopsi menyebabkan berbagai usaha untuk mencari alternatif strategi diagnostik lainnya. Kriteria diagnostik yang direkomendasikan adalah apabila pasien terdapat gejala klinik tuberkulosis dan pemeriksaan cairan pleura menunjukkan eksudat berdasarkan kriteria Light, aktivitas adenosin deaminase (ADA) > 40 U/l, dan rasio limfosit/neutrofil > 0.75, maka diagnosis efusi pleura tuberkulosis boleh ditegakkan yang dibuktikan dengan respon terapi. Tujuan penelitian ini adalah mendapatkan nilai diagnostik real time polymerase chain reaction (RT PCR) pada efusi pleura tersangka tuberkulosis yang memenuhi kriteria diagnostik. Penelitian uji diagnostik prospektif menggunakan 43 sampel cairan pleura dari tersangka tuberkulosis yang dipilih secara konsekutif. Diagnosis efusi pleura tuberkulosis ditegakkan berdasarkan respon terapi positif atau kultur positif. Kultur cairan pleura menggunakan media Lowenstein-Jensen. RT PCR dikerjakan menggunakan primer yang dapat mengenali gen IS6110 dan gen MPB64.

Dari 43 sampel tersebut, Mycobacterium tuberculosis dapat dideteksi oleh RT PCR pada 7 sampel, 4 diantaranya dengan kultur positif. Dengan demikian, sensitivitas RT PCR adalah 16.3% yang lebih tinggi daripada sensitivitas berdasarkan kultur saja yaitu 9.3%. Nilai duga positif dan nilai duga negatif RT PCR berturut-turut adalah 100% dan 0%. Spesifisitas, rasio kemungkinan positif, dan rasio kemungkinan negatif RT PCR tidak dapat dinilai karena semua subyek penelitian memiliki respon terapi positif atau kultur positif. RT PCR memiliki keunggulan yaitu dapat digunakan untuk menegakkan diagnosis definitif efusi pleura tuberkulosis lebih sensitif dan cepat dibandingkan kultur. Dengan demikian, penelitian ini mendapatkan bahwa pada pasien yang memenuhi kriteria diagnosis efusi pleura TB, maka RT PCR merupakan pilihan metode untuk identifikasi infeksi Mycobacterium tuberculosis secara definitif, karena sensitivitas yang rendah maka tidak dapat digunakan sendiri (tunggal).
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ABSTRACT
The difficulty to confirm the definitive diagnosis of tuberculous pleural effusion (TBPE) based on conventional laboratory methods and pleural biopsy have lead to the searching of alternative diagnostic strategies. The recommended diagnostic criteria approach for TBPE diagnosis are if a patient has clinical feature of tuberculosis (TB) and the pleural fluid analysis showed exudate based on Light criteria, the adenosine deaminase (ADA) activity > 40 U/l, and lymphocyte/neutrophil ratio > 0.75, then the diagnosis of TBPE is actually established. The aim of this study is to investigate the diagnostic value of RT PCR on suspected TBPE that fullfiled the recommended diagnostic criteria. The diagnostic study with prospective design assessed 43 pleural fluid samples of suspected TBPE that were selected consecutively. The diagnosis

of TBPE was confirmed based on positive response therapy or positive culture of the pleural fluid. Pleural fluid culture was performed using Lowenstein-Jensen medium. Real time polymerase chain reaction (RT PCR) was carried out using the primer that detect IS6110 and MPB64 gene.

Among 43 samples of suspected TBPE, Mycobacterium tuberculosis could be detected by RT PCR in 7 samples with 4 of them had positive culture. The sensitivity of RT PCR therefore was 16.3%, it was higher than the sensitivity based on culture only which was 9.3%. Positive predictive value and negative predictive value of RT PCR were 100% and 0%, respectively. The specificity, positive likelihood ratio, and negative likelihood ratio of RT PCR could not be defined because all subjects had positive response therapy or positive culture. RT PCR has an advantage that it can be used to establish definitive diagnosis of TB earlier compared to culture. Therefore, when the patient fulfilled the recommended criteria of tuberculous pleural effusion, RT PCR is the method of choice for definitive identification of Mycobacterium tuberculosis infection. However, due to the low sensitivity, it can not be used alone.