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A second generation of RT-PCR assay for detection of human immunodefi ciency virus type 1 (HIV-1) infection

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Abstrak

Tujuan Diagnosis cepat dan spesifik seperti uji RT-PCR sangat diperlukan dalam usaha meminimalisasi penyebaran infeksi HIV-1. Oleh karena itu, dalam studi ini dikembangkan uji RT-PCR yang spesifi k terhadap gen gag HIV-1 sebagai target diagnosis. Metode Uji RT-PCR dievaluasi terhadap 46 spesimen yang diperoleh dari voluntary counseling and testing for HIV(VCT) di Rumah Sakit Umum Pmerintah (RSUP) Sanglah, Bali. Untuk mendapatkan sensitivitas dan spesifi tas uji, hasil uji RT-PCR dibandingkan dengan hasil serologi yang umum digunakan di Indonesia. Hasil Uji RT-PCR dapat mendeteksi 21dari 26 spesimen yang positif uji serologi dan memberikan 19 hasil uji negatif dari 20 spesimen yang negatif uji serologi. Satu spesimen menunjukkan hasil positif dengan RT-PCR tetapi negatif dengan uji serologi. Hasil tersebut kemungkinan menggambarkan hasil yang sebenarnya saat uji serologi tidak dapat mendeteksi infeksi HIV-1. Selain itu, lima spesimen yang positif uji serologi menunjukkan hasil negatif dengan RT-PCR yang diduga disebabkan oleh batas deteksi uji RT-PCR yang rendah. Kesimpulan Uji PCR-RT yang dikembangkan dalam studi ini berpotensi digunakan sebagai uji alternatif untuk mendeteksi infeksi HIV-1 dengan 80.0% sensitivitas dan 95.0% spesifisitas.

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Abstract

Aim A spesifi c and rapid diagnosis such as RT-PCR asay is the most needed to minimize transmission of HIV-1 infection. Therefore, in this study we developed the RT-PCR assay that was spesifi c against the gag gene of HIV-1. Methods The developed RT-PCR assay was evaluated against 46 specimens that were obtained from voluntary counseling and testing for HIV (VCT) in Rumah Sakit Umum Pemerintah (RSUP) Sanglah, Bali. To get the sensitivity and specificity of RT-PCR assay, the results of assays were compared with the results of commercially serologic tests that were commonly used in Indonesia. Results The RT-PCR assay could detect 21 of 26 serologic test-positive specimens and showed 19 negative results of 20 serologic test-negative specimens. There was one specimen that was positive in RT-PCR but negative in serologic assay which might depict a true yield at particular condition when the serologic assay was unable to detect. Five serologic positive-test specimens were negative by RT-PCR that was possibly caused by low detection level of the assay. Conclusion The RT-PCR assay is potential to be used for the detection of HIV-1 infection with a sensitivity and specificity of 80.8% and 95.0% respectively.