

Rubi Ghazala, Arch Gen Intern Med 2019, Volume 3 | DOI: 10.4066/2591-7951-C1-023

COMPARISON OF QUANTITATIVE HEPATITIS B VIRUS DNA REAL TIME PCR (RT-PCR) WITH REVERSE TRANSCRIPTION PCR (RT-PCR)

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Background: Serum HBV DNA is a useful and reliable marker to diagnose and monitor HBV infection. The limitation of HBV DNA is that it is expensive and that the assays lack uniformity and standardization. Hence there is a need for more economical and reliable marker. HBsAg quantitation is one such surrogate serological marker. The objective of the current study is to compare the serum hepatitis B virus DNA quantitative Real Time PCR with Hepatitis B reverse transcription PCR (rt-PCR).

Methods: Patients with HBV attending to the outpatient clinic of all departments were enrolled in the study. Patients with undetectable HBV DNA levels and those co-infected with HCV or HIV were excluded from the study. All patients were tested for serological markers like HBsAg, HBeAg, and HBV DNA-PCR. HBsAg quantification was done using conventional ELISA immunoassay. Chi-square was used to compare between HBV DNA (RT-PCR) and (rt-PCR) quantitation. Statistical analysis was done using SPSS and P value of <0.05 was considered significant.

Results: A total of 661 patients were enrolled in the study. Out of 373 serum samples were analyzed by HBV RT-PCR while 281 by HBV rt-PCR. 38.9% were females in group of HBV RT-PCR while, 32.7% in group of HBV rt-PCR and mean age of patients in the entire study group was 33.01 years in group of HBV RT-PCR while, 34.61 years in group of HBV rt-PCR. The mean ALT level was 57.6 U/L in group of HBV RT-PCR while, 51.00 in group of HBV rt-PCR. 16.5% (n=61) in group of HBV RT-PCR while, 8.9% (n=33) in group of HBV rt-PCR were HBeAg positive. 94.9% (n=351) in group of HBV RT-PCR while, 73.2% (n=271) in group of HBV rt-PCR were HBsAg positive. Mean HBV DNA Positive 44.3% in group of HBV RT-PCR while, 14.6% in group of HBV rt-PCR. HBV DNA (positive) levels were significantly higher in HBV RT-PCR patients compared with HBV rt-PCR patients (164 versus 54; p=0.001). Neither HBsAg levels nor HBeAg levels were significant (p=0.573, 0.057). HBV Real Time RT-PCR is best for diagnosis of HBV DNA PCR. Clinical significant result obtained from such test. HBV RT-PCR has become a useful and important technology for diagnosis of HBV DNA PCR, it must be used appropriately.

Conclusions: There is a significant difference between HBV DNA Real Time PCR (RT-PCR) with HBV DNA reverse transcription PCR (rt-PCR) patients with hepatitis B virus but not in HBsAg and HBeAg.

Keywords: Hepatitis B Virus, Real Time PCR, reverse transcription PCR, HBsAg quantitation

BIOGRAPHY

Rubi Ghazala is a UK trained clinical molecular biologist with M Phil degree in human genetics & molecular biology and PhD thesis in human genetics and molecular biology having more than 15 years of experience in molecular biology & pathology laboratory services, as HCV RNA, HBV DNA PCR, REAL TIME HCV & HBV Genotyping. She has four years of experience in teaching M Phil graduates. She did her services at University of Health Sciences as a senior research / teaching faculty for four years in human genetics and molecular biology department. She did a research project on "Susceptibility of HCV RNA in our isonym group." She is now working on two different projects in Aga Khan University Hospital.

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