Comparison of Abbott RealTime HCV Genotyping II, Abbott HCV Genotype plus RUO with Roche Cobas HCV Genotyping Assays for Hepatitis C Virus Genotyping

Chen-Hua Liu1,2,3, Tung-Hung Su1,2, Chun-Jen Liu1,2,4, Chun-Ming Hong5, Hung-Chih Yang1,2,6, Tai-Chung Tseng1,2,7, Pei-Jer Chen1,2,7, Ding-Shinn Chen1,2,7, Ji-Hong Kao1,2,8

1 Department of Internal Medicine, National Taiwan University Hospital, Taipei, Taiwan, 2 Hepatitis Research Center, National Taiwan University Hospital, Taipei, Taiwan, 3 Department of Internal Medicine, National Taiwan University Hospital, Taipei, Taiwan, 4 Graduate Institute of Clinical Medicine, National Taiwan University College of Medicine, Taipei, Taiwan, 5 Department of Traumatology, National Taiwan University Hospital, Taipei, Taiwan, 6 Department of Microbiology, National Taiwan University College of Medicine, Taipei, Taiwan, 7 Genomics Research Center, Academia Sinica, Taipei, Taiwan

INTRODUCTION

- Accurate diagnosis of hepatitis C virus (HCV) genotyping is important to help treating physicians determining the optimized direct acting antiviral (DAA) regimens. Inaccurate HCV genotyping may mislead the treatment and may cause unnecessary drug expense, increase on-treatment adverse events, decrease the sustained virologic response (SVR) rate, and may induce HCV infection association substituted regimens (RASs) that may compromise the SVR rates by retreatment.
- Although several pan-genotype DAA agents are available now, there are still varied management plan by different genotypes. Furthermore, imprecise HCV genotyping may mislead the diagnosis of relapse, viral breakthrough, or reinfection.
- The PCR-based HCV genotyping methods (Abbott RealTime GTII and Roche Cobas HCV GT assays) are commercially available for routine practice. However, the comparative diagnosis of the two methods, and the performance of the refined Abbott HCV GT plus RUO test, remains elusive.

RESULTS

- Inconsistent and Unsubtypable HCV-1 Results (n = 14, 4.1%)
  - Overall concordance rate (Abbott HCV GT II and Roche Cobas HCV GT): 95.9%
  - Age, year, median (range): 52 (26-91)
  - Male, n (%) 168 (52)
  - HCV RNA, log10 IU/mL, median (range): 6.4 (1.3-7.8)
  - Genotypes, n (%)*
    - 1a: 10 (3)
    - 1b: 152 (47)
    - 2: 131 (39)
    - 3: 12 (4)
    - 4: 3 (1)
    - 5: 31 (10)
    - 6: 1 (0.3)

- Summary of results identified by Abbott RealTime HCV-1 assay or Roche Cobas HCV GT assay, and by direct sequencing for inconsistent or unsubtypable HCV-1 results.
  - Overall concordance rate (Abbott HCV GT II and Roche Cobas HCV GT): 95.9%

CONCLUSIONS

- Abbott RealTime HCV Genotype II and Roche Cobas HCV genotyping assays show high consistent results. High indeterminate rates were found in HCV-6 infection by Roche Cobas HCV genotype assay. Most patients with indeterminate and unsubtypable HCV-1 results by Abbott RealTime HCV Genotype II assay can be accurately diagnosed by plus RUO assay.

REFERENCES


ACKNOWLEDGEMENTS

The authors thank the 7th Core Lab of National Taiwan University Hospital and the 1st Common Laboratory of National Taiwan University Hospital, Yun-Lin Branch, and Department of Diagnostic Medicine, National Taiwan University Hospital for instrumental and technical support.

CONTACT INFORMATION

Chen-Hua Liu
E-mail: jacque_liu@mail2000.com.tw