

Cost effectiveness analysis of anti-HCV serological test versus HCV RNA for epidemiological surveillance; an analysis from endemic country

Won Sriwijitalai^{1*}, Viroj Wiwanitkit²

¹TWS Medical Center, Bangkok Thailand

²Honorary professor, Dr. D.Y. Patil University, Pune, India

Correspondence to:

Won Sriwijitalai, Email:
wonsriwi@gmail.com

Received: 7 August 2018

Accepted: 23 October 2018

ePublished: 14 December 2018

Abstract

Hepatitis C virus (HCV) infection is an important viral infection that can result in chronic hepatitis and hepatoma. The surveillance of disease is an important tool for early detection and prompt management of infection. Here, the authors perform a cost effectiveness analysis of anti-HCV serological test versus HCV RNA test for epidemiological surveillance. Based on our setting, a tropical country in Indochina, the test is more cost effective.

Keywords: Hepatitis C, Anti-HCV, RNA, Cost effective

Citation: Sriwijitalai W, Wiwanitkit V. Cost effectiveness analysis of anti-HCV serological test versus HCV RNA for epidemiological surveillance; an analysis from endemic country. J Prev Epidemiol. 2018;3(2):e14.



Introduction

Hepatitis virus infection is the important medical problem. The infection can be due to several hepatitis viruses including to hepatitis C virus (HCV). The HCV infection is considered problematic since it can result in chronic infection that might further progress to hepatoma (1). The early diagnosis and prompt treatment of HCV infection is proven useful in decreasing the burden of disease (2).

The surveillance of disease is an important disease control and prevention measure. In our setting, a tropical country in Indochina, the disease is highly prevalent and the surveillance becomes the important public health measure to promote early antiviral management of HCV infected patients (3).

Objectives

Regarding the screening, there are two main available laboratory techniques including anti-HCV serology test and HCV-RNA test. Here, the authors performed a cost effectiveness analysis of anti-HCV serological test versus HCV RNA test for epidemiological surveillance.

Materials and Methods

This work is a medical economic analysis. A standard cost effectiveness analysis is performed. Regarding the cost, the reference laboratory test cost from department of

Core tip

The cost effectiveness analysis based on the data on cost and detection rate of HCV by Anti HCV and HCV RNA test in Thailand is done and the HCV-RNA test is more cost effective.

medical science, ministry of public health, Thailand is used and presented in USD.

Ethical issues

The research followed the tenets of the Declaration of Helsinki. Regarding the effectiveness, the detection rate reported in the previous nationwide survey in Thailand (4) is used as primary data for further cost effectiveness analysis in this study.

Results

According to this study, the cost and effectiveness of anti-HCV serological and HCV RNA test is shown in Table 1. The cost per detection for HCV RNA test is less (113.31 USD versus 1016.67 USD).

Discussion

To manage the HCV infection problem requires a good data from epidemiological surveillance. The epidemiological surveillance can help give the current situation regarding the distribution of the virus and can also be useful for planning of use of antiviral drug against the HCV (4). According to the

Table 1. Cost and effectiveness of anti-HCV serological test versus HCV RNA test for epidemiological surveillance

Test	Cost (USD)	Effectiveness (%)	Cost-effectiveness (USD)
Anti-HCV	9.15	0.9	1016.67
HCV RNA	45.75	41.1	111.31

national policies in our setting, the nationwide surveillance is performed. For selection of a good and proper laboratory test for such survey, there are many concerns including to the cost effectiveness.

Conclusion

In this work, the authors perform a cost effectiveness analysis on the two tests use in survey and it can show that the HCV-RNA test is more cost effective for using in epidemiological surveillance for HCV.

Limitations of the study

The work is based on the cross sectional data on cost and effectiveness. The change of cost and effectiveness in different period and setting is possible and can affect the cost effectiveness.

Authors' contribution

SW and WV shared equal contribution in designing the study, data collection and analysis, manuscript writing and editing and final approval of the report.

Conflicts of interest

The authors declare that they do not have any conflicts of interest.

Ethical considerations

Ethical issues (including plagiarism, data fabrication, double publication) have been completely observed by the authors.

Funding/Support

None.

References

1. Wong MCS, Huang JLW, George J, Huang J, Leung C, Eslam M, et al. The changing epidemiology of liver diseases in the Asia-Pacific region. *Nat Rev Gastroenterol Hepatol*. 2019; 16:57-73. doi: 10.1038/s41575-018-0055-0.
2. Pawelczyk A. Consequences of extrahepatic manifestations of hepatitis C viral infection (HCV). *Postepy Hig Med Dosw (Online)*. 2016; 70:349-59.
3. Bunchorntavakul C, Mitrani R, Reddy KR. Advances in HCV and Cryoglobulinemic Vasculitis in the Era of DAAs: Are We at the End of the Road? *J Clin Exp Hepatol*. 2018; 8:81-94.
4. Wasitthanasem R, Posuwan N, Vichaiwattana P, Theamboonlers A, Klinfueng S, Vuthitanachot V, et al. Decreasing Hepatitis C Virus Infection in Thailand in the Past Decade: Evidence from the 2014 National Survey. *PLoS One*. 2016;11:e0149362.