

Abstract

Introduction: Hepatitis C disease is one of the chronic infectious diseases that can cause irreparable liver damage if not diagnosed promptly. After the novel emerging treatments for hepatitis C infection and their enormous effectiveness, health systems expect the elimination of hepatitis C virus around the world shortly. In the Iranian Hepatitis C Clinical Guidelines, prioritizing treatment regimens is based on clinical criteria, regardless of their economic and cost aspects. Thus, the present study aimed at economic evaluation of existing hepatitis C treatments in Iran based on the National Clinical Guidelines.

Methods: The present study was an economic evaluation study that was conducted as a cost-effectiveness method considering that hepatitis C is a chronic disease with long-term costs and outcomes. Markov model with one year cycle was used to compare costs and outcomes over the lifetime horizon. According to the National Clinical Guidelines, treatment regimens available for patients with genotype one and three hepatitis C in Iran include Sofosbuvir/Ledipasvir, Sofosbuvir/Velpatasvir, and Sofosbuvir/Daclatasvir. The study's perspective is the health system, and costs include direct patient costs, hospital, pharmaceutical, diagnostic and laboratory costs, and physician visits defined in terms of health states. The primary outcome of the study was the sustained virologic response rate, and the main outcome for cost-effectiveness analysis was QALY. Some of the data of this study were collected by direct referral to Afzalipour Kerman Hospital, and other data were extracted from the studies. Finally, a deterministic and probabilistic sensitivity analysis was performed to investigate the influence of parameters affecting the results of the study.

Results: The results showed that the lifetime costs of the sof/ldv, sof/vel and sof/dcv regimes were 97,707,585 Rials, 107,943,353 Rials and 98,161,242 Rials, respectively. The long-term outcomes of these regimens were 215.25, 212.252 and 215.113, respectively. In genotype 1 hepatitis C, the Sofosbuvir/Ledipasvir was a low-cost strategy that was cost-effective compared to other regimens. Also, in genotype 3 hepatitis C, the Sofosbuvir/Velpatasvir with ICER was 589,022,890 riyals per QALY compared to the Sofosbuvir/Daclatavir. In genotype 1, the sof/ldv and sof/vel regimens were identified as the first and second priorities of the treatment line. Also for genotype 3, the sof/vel regimen was the first priority of the treatment line and the sof/dcv regimen the second priority. The results of probabilistic sensitivity analysis showed that in genotype 1, the sofosbuvir/ledipasvir was more likely to be cost-effective, and in genotype 3, it showed that the Sofosbuvir/Velpatasvir is more likely to be cost-effective in the threshold of three times GDP per capita (691,866,000 rials).

Conclusion: Sofosbuvir/Ledipasvir was the least costly and cost-effective strategy for genotype 1, and in genotype 3, the Sofosbuvir/Velpatasvir was the most effective strategy that would be cost-effective at the threshold of three times GDP per capita. Therefore, it is recommended to pay special attention to the treatment of hepatitis C patients using cost-effective regimens to prevent the progression of liver disease and reduce the long-term costs of the health system.



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Title

**Economic Evaluation of Hepatitis C Treatments Available in Iran Based on
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By

Mohammad Tasavon Gholamhoseini

Supervisor :

Dr Asma Saber Mahani

Advisor :

Dr Behzad Hajarizadeh

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