

HCV Treatment with Sofosbuvir in Pakistan; Current Scenario and Future Perspective

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Conflict-of-interest statement: The authors declare that there is no conflict of interest regarding the publication of this paper.

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Received: March 3, 2018

Revised: March 18, 2018

Accepted: March 21, 2018

Published online: April 21, 2018

ABSTRACT

Hepatitis C Virus (HCV) is a global problem with around 1.75 million new infections yearly. With approximate 70% chronicity rate about 399,000 people die each year from hepatitis C. Pakistan is endemic for this infection with 5-8% prevalence in general population. There are several HCV genotypes and antiviral therapies are genotype dependent. In Pakistan genotype 3a is dominant followed by diagnostically untypable HCV variants. Previously interferon based antiviral regimens were the only choice for HCV treatment in Pakistan. Recently sofosbuvir is introduced in Pakistan on heavily discount. Although sofosbuvir showed very good sustained virological response (SVR) globally but due to different ethnicity and genetic makeup, it is important to analyse the drug

efficacy in Pakistan. Available limited data showed that overall SVR/rapid virological response (RVR) is very good. The current data is very limited and it is highly needed to have studies reporting the sofosbuvir treatment response from different ethnic groups from the whole country.

Key words: HCV; Treatment; Sofosbuvir; Direct acting antivirals; Pakistan

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Khaliq A, Ahmad I, Afzal MS. HCV Treatment with Sofosbuvir in Pakistan; Current Scenario and Future Perspective. *Journal of Gastroenterology and Hepatology Research* 2018; 7(2): 2578-2580 Available from: URL: <http://www.ghrnet.org/index.php/joghr/article/view/2294>

LETTER TO THE EDITOR

Hepatitis C Virus (HCV) is the global problem with more than 170 million infections^[1]. It has been estimated from modelling that in 2015, there were 1.75 million new HCV infections develop worldwide (globally, 23.7 new HCV infections per 100,000 people)^[2]. Approximately 60-80% of infected individual are converted into chronic infections while around 15-30% are ultimately develop hepatocellular carcinoma (HCC). About 399,000 people die each year from hepatitis C, mostly from cirrhosis and HCC^[2]. Pakistan is a country with a very high burden of HCV. It is estimated that around 5-8% general population is infected with this silent killer^[3-4]. It is recently highlighted that around 10-11 million individual of Pakistan are infected with HCV^[3-5]. Prevalence of HCV in high risk groups like injection drug users (IDUs), multi-transfused individuals, individual undergone medical/dental procedures, people treated by ill equipped health care system is very high (30-70%) . Low education of health care provides and general population about the prevalence routs of HCV makes condition more alarming and leads to increasing burden of HCV every year^[3-6].

There are six major HCV genotypes and several sub-types due to error prone nature of viral polymerase. Geographical distribution of HCV genotypes is different globally. Disease pathogenesis of

different viral genotypes is significantly varies. Different genotypes showed variable physiological effects in infected individuals and can lead to differential extra-hepatic manifestations as well^[7]. The course of antiviral treatment is also viral genotype dependent^[8]. Viral genotypes and sub-types respond in a different way, hence it is very important for health care providers to know the causative viral genotype before starting the antiviral therapy. There are several studies investigating the prevalence of HCV genotypes from different areas of Pakistan. Recently, we have reviewed the available data from Pakistan regarding the prevalence of HCV genotypes and the data showed that 3a genotype is the most prevalent (63%) followed by genotypes 1 (09%) and 2 (08%) along with an alarming number of diagnostically untypable viral genotypes (14%) in the local community^[8-9].

Previously HCV was treated with interferon based antiviral regimens. The treatment response of interferon based antiviral therapy is fairly genotype dependent^[10]. Although sustained virological response (SVR) was quite good against most prevalent HCV genotype (3a) in Pakistan, it is difficult to bear for most of the patients due to severe side effects. There are several studies analysing the efficiency of interferon based therapy against 3a GT in Pakistan. The results showed that 60-90% individual showed SVR when treated with interferon based antiviral therapy^[11].

Recently with the advancement of research in the field of Direct Acting Antivirals (DAAs), FDA approved several DAAs for HCV treatment. Due to high cost, initially it was very difficult to get treatment with DAAs in most of the developing countries including Pakistan. However recently sofosbuvir (NS5B inhibitor) was introduced in Pakistan on heavily discounted price. Sofosbuvir showed good SVR in European and Caucasian populations. Pakistan is a country with different genetic makeup as compared to European and Caucasian. The viral genotype prevalence pattern is also different in Pakistan with 3a as most prevalent one. So it is very important to have an actual idea about the SVR in individuals infected with 3a genotype in Pakistan. The results of actual population based studies are important to know about the efficiency of therapy and to design the therapy dose/duration for local community. Keeping in mind this important aspect of therapy success and future prediction, the current study was designed to analyse the available data regarding the HCV treatment with sofosbuvir from Pakistan. Literature survey showed that there are only 07 studies reporting the antiviral response of sofosbuvir in Pakistan^[12-18]. The available limited data showed that overall sustained virological response (SVR)/rapid virological response (RVR) is very good. The literature search resulted into retrieval of only seven studies regarding the HCV treatment with sofosbuvir based antiviral regimen. A first report was in 2016 from Rawalpindi city which included 502 patients treated with sofosbuvir and among those 91% showed RVR^[12]. Capileno *et al.* (2017) study from Karachi included 153 patients and reported that 84% patients showed RVR^[13]. The detailed analysis of available data suggested a very good response for this DAA antiviral regimen in different cities with overall 80-100% SVR/RVR^[13-18]. There is also a study which included 37 renal transplant HCV patients from Karachi and sofosbuvir treatment showed 89.2% RVR for these individuals^[19].

The available data is very limited so it is difficult to predict or apply the therapy response for the whole country. The available reports are only from four major cities i.e. Karachi, Lahore, Rawalpindi and Faisalabad and no study is available from other parts of the country. In Pakistan there are several ethnic groups residing in different geographical areas. Different provinces consist of entirely different ethnic races and there are several sub ethnic communities in

different regions of Pakistan. The difference in genetic background may effect the antiviral therapy response so it is highly needed to have studies reporting the sofosbuvir treatment response from the whole country. As Government of Pakistan recently took an initiative to give free treatment to hepatitis C patients. The data of these treated patients from all across the country should be documented and be used for future guidelines formulations for treatment of different viral genotypes. The response may vary according to the host genotype and future treatment guidelines should be designed accordingly. In this way maximum benefit can be attained with this advancement of antiviral treatment.

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