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*Mini-review*

# THE CURRENT CHALLENGE OF HCV-RNA RESISTANCE AGAINST DIRECT-ACTING ANTIVIRAL DRUGS.

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**Key words**: HCV-RNA, Resistance, Direct-Acting Antiviral.

The HCV-RNA (Hepatitis-C RNA) diagnosed patients are recommended interferon free Direct-Acting Antiviral (DAAs) therapy. Although the treated patients are reported viral resistance to DAAs, the genotype 3a infection is challenge to NS5A inhibitors leading to cirrhosis. Therefore, the patients with chronic Hepatitis-C treated with DAAs, nucleotide analogue inhibitors or NS5B protein have high risk of resistance. Breakthrough or relapse is not common with these drugs when used as monotherapy.NS3-4A protease inhibitors and non-nucleoside inhibitors have low susceptibility to resistance. Sofosbuvir-resistant variants have been discovered that disappear after treatment withdrawal. Patients who experience relapse after an INF-free treatment have large fraction of drug resistant viruses. [1].

The quantification of Hepatitis-C RNA has been made possible by means of commercial and standardized assays in mid 90's. These assays were used in retrospective and prospective cohort studies and also used in clinical trials. Currently, the most diagnostic and research laboratories used Real Time PCR (RT-PCR) based assays. In theory these methods give better analytical sensitivity, improved sensitivity, broader dynamic ranges of quantification, precision and reproducibility. [2,3] RT-PCR methods can detect and quantify minute amounts of circulating HCV RNA i.e, 12 IU/ml. This technique is used to assess the response to antiviral therapy. [4]

Genotype 3 infections can cause rapid development to cirrhosis and increased rates of hepatocellular carcinomas than other genotypes. Patients with genotype 3 infection have lower sustained virologic response rates than other genotypes treated with DAAs. Antiviral treatment for hepatitis C is changing rapidly. [5] Current therapy is based on direct acting antiviral agents due to their efficacy, improved safety and sustained virologic response. Though some patients show resistance to therapy.

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