

Development of HCC Post HCV SVR Therapy; Data Mining Discovery (Proposal Study)

Abd Elrazek M Ali*

Lecturer and Consultant Hepatology and Gastroenterology, Aswan Faculty of Medicine, Aswan University, Aswan, Egypt.

Received: 19 Feb. 2017, Revised: 2 Mar. 2017, Accepted: 8 Mar. 2017.

Published online: 1 May 2017.

Abstract The main risk of chronic HCV infection is progression to cirrhosis and its attendant complications. Curing HCV prior to the development of advanced cirrhosis results in decreased hepatocellular carcinoma rates and liver-related complications, unlike HBV, it is not common to find HCC on healthy liver of a patient's with HCV infection. Recently some patients developed HCC, with or without portal vein thrombosis post SVR of new oral therapy, nevertheless hepatocellular carcinoma rates and liver-related complications, has dramatically advanced in the past 5 years. Interferon based-therapy had substantial effect on HCC. The new direct-acting antiviral agents (DAAs) yield outstanding results with >95% of patients with HCV achieving sustained virologic response (SVR) after 12 weeks of treatment. This remarkable achievement represents a major breakthrough in hepatology, unfortunately many aggressive HCCs have been reported at the end of new (DAAs), the situation have not been observed with Peg-interferon/ribavirin regimen, wondering if DAAs alter immunomodulation pathways in a way that abrogates the immune system's ability to control small neoplastic niches (either denovo occurrence, recurrences or both of them). Unfortunately, most of the DAA trials excluded patients with HCC.

Keywords; HCC, Oral therapy, HCV, data mining.

1 Discussion

1.1 Primary objectives:

- 1- Detection of specific HCV genomes responsible for HCV induced HCC in naïve patients have not received therapy.
- 2- Detection of specific HCV genomes responsible for HCV induced HCC in patients have been received therapy.
- 3- Analyze big clinical and laboratory data by advanced bioinformatics data mining technology

2 Secondary, long term objectives and Impact

2.1 Which should be the triggering for HCC development?

Cirrhosis, HCV certain genome, DAAs itself or a fashion of multi-factorial attempt? For the reason explore, many Labs started their work worldwide distinguishing among those developed HCCs on top of healthy liver, those developed HCCs on top of cirrhosis and those never developed HCCs despite of cirrhosis

Two Groups of patients who developed HCC after achievement of SVR; Post cirrhotic (Group 1) and those without cirrhosis (Group 2). Both Groups should be analyzed

adequately using data mining for; Clinical Presentation, Personal History, Family History, HCV RNA Sequencing analysis post SVR, Other factors related- liver cancer...etc.

2.2 Impact of the Study

1. Understanding the event of HCC post SVR, related to cirrhosis process or due to specific HCV genome itself, who should screened for HCC post SVR for Life.
2. Translation medicine study to understand such mutations may lead to developing new HCV carcinogenic genome or immunity related-carcinogenesis, other factors should be analyzed using advanced computational analysis of data mining, to discover complimentary factors may help in HCC development , e.g.; diabetes, fatty liver, high BMI, family history, age ,.....etc.

*Corresponding author e-mail: ahmadrazek@gmail.com

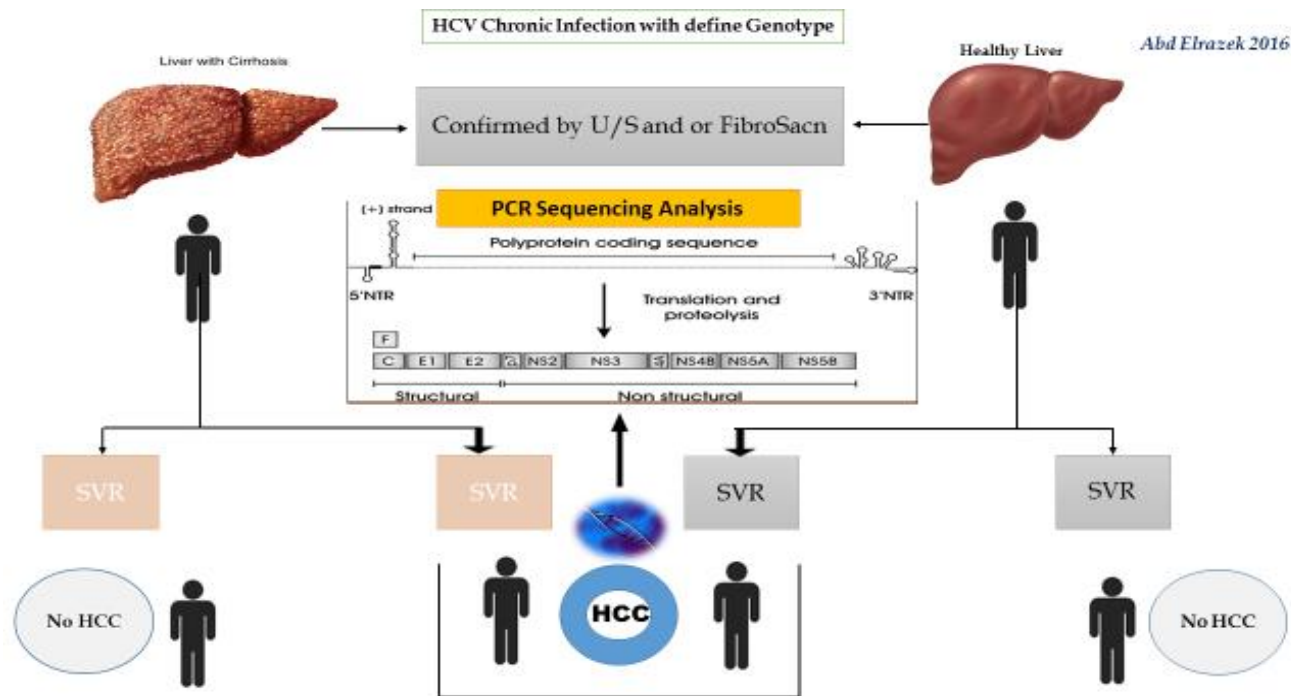


Figure 1: study of HCC development in both cirrhotic and non-cirrhotic groups

References

- [1] Roberta D'Ambrosio and Massimo Colombo Should surveillance for liver cancer be modified in hepatitis C patients after treatment-related cirrhosis regression? *Liver Int.* 2016; 36: 783–790.
- [2] Mallet V, Gilgenkrantz H, Serpaggi J, et al. Brief communication: the relationship of regression of cirrhosis to outcome in chronic hepatitis C. *Ann Intern Med* 2008; 149: 399–403.
- [3] 3-The ANRS collaborative study group on hepatocellular carcinoma. Lack of evidence of an effect of direct acting antivirals on the recurrence of hepatocellular carcinoma: data from three ANRS cohorts. *J. Hepatol.* <http://dx.doi.org/10.1016/j.jhep.2016.05.045> (2016).
- [4] Morgan, R. L. et al. Eradication of hepatitis C virus infection and the development of hepatocellular carcinoma: a meta-analysis of observational studies. *Ann. Intern. Med.* 158, 329–337 (2013).
- [5] Lok, A. S. et al. Incidence of hepatocellular carcinoma and associated risk factors in hepatitis C-related advanced liver disease. *Gastroenterology* 136, 138–148 (2009).
- [6] Josep M. Llovet and Augusto Villanueva. Effect of HCV clearance with direct-acting antiviral agents on HCC. *NATURE REVIEWS GASTROENTEROLOGY & HEPATOLOGY*; 2016
- [7] European Association for the Study of the Liver. EASL-EORTC clinical practice guidelines: management of hepatocellular carcinoma. *J. Hepatol.* 56, 908–943 (2012).
- [8] Bruix, J. et al. Adjuvant sorafenib for hepatocellular carcinoma after resection or ablation (STORM): a phase 3, randomized, double-blind, placebo-controlled trial. *Lancet Oncol.* 16, 1344–1354 (2015).
- [9] Serti, E. et al. Successful Interferon-Free Therapy of Chronic Hepatitis C Virus Infection Normalizes Natural Killer Cell Function. *Gastroenterology* 149, 190–200 (2015).
- [10] Qing-Lei Zeng, Bing Li, Xue-Xiu Zhang, Yan Chen, Yan-Ling Fu, Jun Lv et al., Clinical Model for Predicting Hepatocellular Carcinomas in Patients with Post-Sustained Virologic Responses of Chronic Hepatitis C: A Case Control Study. *Gut and Liver*, Published online June 3, 2016.