Serum microRNA-122 Levels in Egyptian Patients with Chronic Hepatitis C virus Genotype 4 Infection before and after treatment with Direct Acting Antiviral Drugs

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Background: Viral hepatitis was estimated to be the 7th leading cause of mortality globally. About half of this mortality is attributed to HCV, a primary cause for liver fibrosis, cirrhosis and cancer. The recent development of highly efficacious oral DAAs provides opportunities for reducing HCV disease burden and its onward transmission, with the potential for eliminating this blood-borne virus as a public health concern. WHO has recently formulated the 'Global Health Sector Strategy on Viral Hepatitis, 2016– 2021 with service coverage targets to eliminate HCV as a public health threat by 2030.

Objective: To asses the possible relation of miRNA 122 to HCC development after HCV therapy with direct antiviral drug.

Patients and Methods: Previous studies suspect that HCV therapy by DAAS may increase risk of HCC so the aim of our study is to evaluate miR-122level at end of HCV treatment by DAAS and compare the results with miR-122level in HCC patients. The study was performed as a case control study in Ain Shams University hospital and Suez Canal authority hospital (Outpatient Clinic), at Ismailia Egypt in the period between Augusts to October 2018.

Results: These results revealed an effect of treatment by DAAs in HCV infected patients leading to miRNA 122 reduction and this may be related to hepatocarcinogenesis. However, further studies on a large patients number are needed to clarify this

point and determine the diagnostic and possible therapeutic value of miRNA 122 in HCV infected patients.

Conclusion: Baseline MiR-122 level at cutoff value $\leq$0.26 was significantly lower in HCC patients than chronic HCV patients and normal controls, with a sensitivity of 80%, a specificity of 70%. MiR-122 was significantly reduced at end of HCV therapy with DAAs and became similar to values in HCC patients. Whether this observed reduction is mechanistically related to hepatocarcinogenesis is still a possibility, to be clarified in furtur large scale studies. The reduction of MiR-122 at the end of HCV therapy with DAAs was significantly observed in (F3,F4) patients than those with early fibrosis stages(F1,F2).This again gives a possible explanation of HCC development in HCV patients with advanced fibrosis(cirrhosis)and raises the question about the diagnostic and therapeutic value of miRNA 122 (and possibly other miRNAs)in the management strategy of HCV infected patients.

Key words: Hepatitis C virus, chronic hepatitis C.