



# The Effect of Antiviral Therapy on Serum Lipid Profiles in Chronic Hepatitis C

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**Objective:** Low lipid profile is associated with hepatitis C virus (HCV) infection and maybe predicts HCV treatment response. Chronic HCV infection is the main cause of liver fibrosis and advanced liver fibrosis may alter lipid profiles during HCV treatment. We aimed to evaluate the effect of antiviral therapy on lipid profiles and to investigate the factors related to the changes of lipid profiles in chronic hepatitis C patients.

**Methods:** Total 863 patients who complete the treatment by interferon-based therapy in Kaohsiung Medical University Hospital were included in this study. The lipid profiles measured and evaluated in baseline, end of the treatment and after 6 months of the cessation of the anti-HCV treatment.

**Results:** Sustained virological response (SVR) was achieved in 81.2% of all patients. The baseline triglycerides (TG) levels in the SVR group (90.5±34.3 mg/dL) and non SVR groups (93.5±37.3 mg/dL) were similar. The TG levels at 6 months after cessation of the treatment was significantly elevated in SVR group (102.9±57.0 mg/dL, p=0.0001) but did not elevated in non SVR group (94.5±45.6 mg/dL, p=0.690) compared with baseline TG levels. After adjusting patients by four indexes for fibrosis (FIB4) in cut-off point 3.25, serum TG levels significantly increased in low FIB4 group (103.2±57.9 mg/dL, p=0.0001) but not in high FIB4 group (98.1±49.6 mg/dL, p=0.095) after 6 months end of the treatment. The other lipid profiles such as total cholesterol, high density lipoprotein cholesterol and low density lipoprotein cholesterols were increased in both high and low FIB4 groups. Serum TG level was increased greater in patients who had low FIB4 score and patients who achieved SVR (baseline 89.1±34.8 mg/dL; 6 months after treatment 104.3±59.3 mg/dL, paired T test p=0.0001). The change of serum TG level for low FIB4 (15.1±53.3 mg/dL) and high FIB4 (6.7±47.9 mg/dL) groups were significantly (p=0.041) different in patients who achieved SVR.

**Conclusion:** Our study support that clearance of the HCV RNA is the main determinant of the increase of lipids after PegIFN/RBV treatment. However advanced fibrosis also has an effect in increase of lipids after the treatment.

Table 1. The comparison of basic characteristics and lipid profiles in SVR or non SVR group

Characteristics	Total	SVR	Non SVR	P value
Number of patients (%)	863	701(81.2%)	162(18.8%)	
Age (mean, SD)	53.9±11.0	53.3±10.9	56.5±11.2	0.001
Sex				0.082*
male	442(51.2%)	369(52.6%)	73(45.1%)	
female	421(48.8%)	332(47.4%)	89(54.9%)	
HCV genotype (1b/others, %)	358(41.5%)/505(58.5%)	256(36.5%)/445(63.5%)	102(63%)/60(37%)	0.0001*
HCV RNA (KIU/mL, SD)	1296.9±2242.2	1162.5±2152.2	1873.8±2520.1	0.001
BMI	24.8±3.7	24.6±3.6	25.8±3.5	0.0001
Diabetes				0.084*
Yes	137(16%)	104(15%)	33(20.5%)	
No	719(84%)	591(85%)	128(79.5%)	
Interleukin 28 beta				0.084*
TT	536(62.1%)	445(63.5%)	91(56.2%)	
Other	327(37.9%)	256(36.5%)	71(43.8%)	
FIB4 (mean, SD)	3.1±2.4	2.9±2.1	3.8±3.4	0.001
GOT (U/l)	94.0±58.1	94.7±59.9	91.0±49.6	0.458
GPT (U/l)	137.5±92.7	140.1±93.9	126.4±86.8	0.092
GGT (U/l)	60.6±58.6	60.8±60.6	59.9±49.4	0.872
PLT (10 <sup>9</sup> /l)	169.8±62.4	173.1±61.3	155.9±65.3	0.002
AFP (ng/ml)	17.4±119.0	18.1±131.8	14.4±17.3	0.743
Triglycerides (mg/dl)	91.1±34.9	90.5±34.3	93.5±37.3	0.336
Cholesterol (mg/dl)	166.8±31.1	166.0±30.3	170.2±34.0	0.127
HDLc (mg/dl)	45.7±14.4	45.4±14.2	46.7±15.1	0.305
LDLc (mg/dl)	97.9±27.9	97.7±27.4	98.6±29.6	0.731

\*P value of Chi squared test, SVR – sustained virological response, BMI – body mass index, GOT – glutamic-oxaloacetic transaminase, GPT – glutamic-pyruvic transaminase, GGT – gamma-glutamyl transferase, PLT – platelet, AFP – alpha-fetoprotein, HDLc – high density lipoprotein, LDLc – low density lipoprotein, SD – standard deviation

