The differential glycemic control response to sustained virologic response in type 2 diabetes with chronic hepatitis C patients: a two-year follow-up study

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Background/Problem/Objective

Currently, direct-acting antiviral drugs (DAA) are the gold standard treatment for chronic hepatitis C (HCV) infection to achieve sustained virologic response (SVR) in nearly all patients. HCV infection is proved to directly impair glucose metabolism. Among patients with both type 2 diabetes (T2D) and HCV, SVR achieved by DAA therapy may improve glycemic control, but available studies are limited. Our study is aimed to examine the effects of SVR achieved by DAA on long-term glycemic control.

Methods/Intervention

We conducted a retrospective cohort study of T2D patients from St. Martin De Porres Hospital who had a positive HCV RNA test and received first course of DAA between 25 Jun, 2017 and 22 Jan, 2019. SVR was defined as post-DAA therapy HCV RNA non-detectable. Compared to before DAA, the effects of SVR on changes of glycated hemoglobulin (HbA1c) after DAA, 1 year', and 2 year' follow-up (FU) was statistically evaluated by Friedman test (SPSS version 24.0).

Results (of evaluation)

Totally 93 T2D & HCV treated by DAA were enrolled and all achieved SVR. The mean age was 68 y/o and male was 50%, as shown in Table 1. SVR was statistically associated with HbA1c improvement after DAA (P=0.019), but not 1 year' and 2 year' FU. The baseline poorer sugar control group [HbA1c>7% (N=42)], SVR was strongly associated with HbA1c reduction after DAA, 1 year', and 2 year' FU(P<0.001). SVR did not significantly improve HbA1c in better glycemic control [HbA1c<= 7%(N=51)] at any FU, as shown in Table 2.

Table1. Demographic data of HCV with DM patients

Variable	Mean(SD)
Sex, n(%)	
Male	50 (53.76)
Female	43 (46.24)
Age	67.63 (9.02)
Before HCV-RNA	3882151.29 (5382994.90)

Table2. Comparison of HbA1c before treatment and follow-up till 2 years

	Before HbA1c	After HbA1c	After 1 years HbA1c	After 2 years HbA1c	
	Median(IQR)	Median(IQR)	Median(IQR)	Median(IQR)	P-value
HbA1c ≤ 7% (N=51)	6.30(0.70)	6.30(1.20)	6.50(1.10)	6.50(1.30)	0.129
HbA1c > 7% (N=42)	8.20(1.43)	7.10(1.78)*	7.30(1.60)*	7.30(1.50)*	P<0.001

IQR: Interquartile range.

Friedman test.

*Significantly different from before HbA1c (P <0.05).

Conclusions/Lessons learned

Our study showed that DAA-based HCV therapy resulting in SVR do improve glycemic control, although the effects not persist after 1 year' and 2 year' follow-up. However, the benefits of glycemic improvement were consistently prominent up to 2 years in initially poorer blood sugar control group before DAA, as compared to baseline better sugar group. It implied DAA therapy is more urgently needed for poor glycemic control T2D and HCV patients to achieve better sugar control.

Relevance to HPH

This study discloses SVR achieved by DAA-based HCV improves T2D glycemic control, especially those with poor control. T2D combined with HCV patients are necessary to take DAA to prevent hyperglycemia related morbidity & mortality.

Keywords:chronic hepatitis c, type 2 diabetes, sustained virologic response, glycemic control