2220. Wirelessly Observed Therapy with a Digital Medicines Program to Optimize Adherence and Target Interventions for Oral Hepatitis C Treatment

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Background. Real-world data on adherence to new oral hepatitis C virus (HCV) therapies are limited. Suboptimal adherence can lead to unnecessary treatment failures. Usual methods to measure adherence are inaccurate, and do not allow for opportunistic intervention. The digital medicines program (DMP) consists of DigiMeds™ (medicines with an ingestible sensor), a wearable sensor patch that confirms ingestion, the Proteus Discover™ mobile app, and secure web portal to allow for timely assessment of adherence, prevent missed doses, and maximize the likelihood of sustained virologic response (SVR), or cure. This study evaluated adherence and virologic outcomes in chronic HCV patients treated with sofosbuvir/ledipasvir (SOF/LDV) using the DMP.

Methods. This was a single-arm, prospective, open-label, pilot study at two sites. SOF/LDV tablets co-encapsulated with ingestible sensors allowed the DMP to record ingestion adherence rates (number of ingestions detected/number of expected ingestions). Other outcomes were medical interventions, SVR 12+ weeks after end of treatment, patient satisfaction, and safety.

Results. All 28 subjects (age 59 ± 7 years [mean ± SD]; 61% male, 39% Caucasian, 93% treatment-naïve) had HCV genotype 1; 27 completed treatment. Most (82%) had ≤$25,000 income/year, 46% had psychiatric comorbidities, and 32% had a history of drug abuse. The DMP was used for 92% of expected days; mean ingestion adherence was 94%. Providers used the DMP data for same-day adherence interventions in 39% of patients. SVR was achieved in 26 of 28 subjects (2 had failed prior therapy). One subject who did not achieve SVR had high adherence (≥95%), suggesting viral resistance; the other was non-adherent (<90%). Most (92%) agreed the DMP helped them feel more involved in managing their healthcare and easy to use in their daily routine; 85% agreed the DMP helped them understand the importance of taking medications regularly. Four subjects reported four nonserious adverse events of rash/pruritus, which resolved and were consistent with use of adhesives.

Conclusions. These data suggest that the DMP may be used to support adherence to therapy through targeted, same-day adherence interventions, and optimize SVR rates, including in those with risk factors for nonadherence and in those who previously failed treatment.

2221. Active Substance Use Should Not Be a Contraindication for Hepatitis C Treatment in Hepatitis C and Human Immunodeficiency Virus Co-infected Patients

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Background. Hepatitis C virus (HCV) infection disproportionately affects HIV-infected patients. HIV/HCV co-infected patients are more likely to develop advanced liver disease/cirrhosis in comparison to mono-infected patients. HCV treatment with new oral direct-acting antiviral (DAA) therapy is effective in HIV/HCV co-infected patients with cure rate similar to mono-infected patients. Despite the effective treatments, only small portion of co-infected patients are treated for HCV infection. One of the known barriers to HCV treatment is active substance abuse. However, there is limited information about outcomes of HCV treatment with active substance abuse in HIV/HCV co-infected patients. Our primary aim was to evaluate Hepatitis C treatment outcomes in HIV/HCV co-infected patients with active substance abuse (ASA).

Methods. We performed a retrospective cross-sectional study of HIV/HCV co-infected patients that were treated for HCV between 2014 and 2017 treated for HCV between 2014 and 2017. We defined active substance abuse (ASA) by self-report of active drug use at the time of treatment evaluation. We described patient demographics and overall HCV sustained virologic response at 12 weeks after treatment.

Results. One hundred thirty-eight HIV/HCV co-infected patients were treated. The majority (N = 134, 97%) achieved sustained virologic response (SVR) after 12 weeks of treatment. Thirteen patients were active substance abusers, nine used cocaine, three used intravenous drug, and one used both. Twelve (92%) patients in the ASA group achieved SVR at 12 weeks in comparison to 122 (98%) in the non-ASA group (P = 0.26). ASA group had a higher rate of psychiatric comorbidities in comparison to the non-ASA group (100% vs. 58%, P = 0.002).

Conclusions. In our study, direct active antiviral HCV treatment was highly effective on type 2 DM. The effect of the management with newer agents leading to sustained active substance abuse group and none user group. Given co-infected patients have worsened prognosis with chronic HCV infection, active substance abuse should not be an absolute contraindication to HCV treatment.

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2222. Impact of Sustained Virologic Response Achieved Through Newer Direct Acting Antivirals in Hepatitis C Infection on Diabetes Mellitus

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Background. Hepatitis C virus (HCV) infection is one of the leading causes of morbidity and mortality in the United States with an incidence of about 8.7 cases per 100,000 population and a prevalence of ~2.7 to 3.9 million people. To our knowledge only one study was performed so far to assess the relation between treating hepatitis C virus using direct acting antiviral drugs (DAA) and reduction in the severity of type 2 diabetes mellitus (DM). Our study aims to assess the effect of SVR in hepatitis C virus on type 2 DM.

Methods. We performed a retrospective chart review in our hepatitis clinic located in Shreveport, Louisiana. Patients with age greater than 18 years old, who has both uncontrolled hepatitis C and type 2 DM, seen in our clinic from November 1, 2014 to December 31, 2017 were included. Hospital electronic health records were screened for diagnosis of hepatitis C and uncontrolled type 2 DM by ICD codes. We performed paired sample t-test between pre- and 6-month post-treatment-values of fasting blood sugar and Body Mass Index (BMI).

Results. There was a statistically significant improvement in fasting blood sugar levels following hepatitis C therapy from 184.2 ± 74.8 to 133.06 ± 48.2 (P <0.01), with an improvement of 51.2 ± 77.6 respectively (N = 49).

Conclusions. We conclude that there was statistical significant reduction in fasting blood sugar and hemoglobin A1C levels after achieving sustained virologic response with new direct antiviral treatment for hepatitis C. A pre- and posttreatment change in body mass index was statistically significant implying change in blood sugar level was not due to weight loss. There was no change in diabetic medication during the period of the study or there were no dose adjustments occurred.

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2223. Effect of Direct-Acting Antivirals in Hemodialysis Patients with HCV: Real-Life Data

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Figure 2. Proportion of patients treated by each specialty by year of treatment initiation (excludes those classified as “other” and “missing”).

% Treated by Each Specialty Per Year (2011-2017 data for DAAs treated persons)