Impact of Direct-acting Antiviral Agents on Glycometabolism in Chronic Hepatitis C Patients with Type 2 Diabetes Mellitus: A Systematic Review and Meta-analysis

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Abstract

Background and aims: The type 2 diabetes mellitus (T2DM) is a common comorbidity of chronic hepatitis C (CHC). This study intended to investigate the impact of direct-acting antiviral agents (DAAs)-induced sustained virological response (SVR) on glycometabolism in CHC patients with T2DM. **Methods**: We searched PubMed, Scopus, Web of Science, and Embase up to July 7th, 2021. Studies reporting the association between DAA-induced SVR and glycometabolism in diabetic patients were retained. Changes in glycated hemoglobin (HbA1c) and fasting plasma glucose (FPG) levels before DAA treatment and after SVR were conducted meta-analyses with random-effects models. **Results**: 1371 potentially relevant articles were screened. Our analysis included 16 studies with data for 5024 patients. A significant improvement was noted in glycemic control in SVR group, with a mean HbA1c reduction of 0.57% (95% CI: 0.46–0.69%; I^2=72.8%) and FPG reduction of 22.28mg/dL (95% CI: 13.35–31.21mg/dL; I^2=96.18%). Conversely, changes of HbA1c in non-SVR group were a mean increase of 0.03% (95% CI: -0.15–0.22%; I^2=68.75%). Subgroup analyses about HbA1c and FPG classified by study type both showed decline of the two indicators after SVR, and especially a reduction of HbA1c, 0.52% (95% CI: 0.39–0.65%; I^2=73.5%) in retrospective study subgroup and 0.70% (95% CI: 0.54–0.87%; I^2=36.15%) in prospective study subgroup, indicating lower heterogeneity in prospective studies. Egger's test suggested publication bias in impact of DAAs on FPG, and no publication bias in impact on HbA1c. Sensitivity analyses confirmed robustness of the results. **Conclusion**: The glyco-metabolic control improved in terms of HbA1c and FPG level after DAA-induced SVR. However, further large and well-designed prospective cohort studies are still warranted and a prolonged follow-up is needed.

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