EXTRA HEPATIC EFFECTS OF SOFOSBUVIR ON A SEROUS MODEL OF MAJOR AND MINOR SALIVARY GLANDS IN ALBINO RATS

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Abstract

Background: Extra hepatic adverse effects associated with the therapy of chronic HCV infection with sofosbuvir treatment regimens have recently arisen. Objective: This study aimed to assess the inflammatory effect of sofosbuvir and its influence on cellular proliferation, functionality and differentiation of both submandibular (SMGs) and Von Ebner's salivary glands (EGs). Methodology: 21 adult male albino rats were divided into three equal groups: GroupI (control) received orally distilled water; GroupII received orally sofosbuvir (40 mg/kg/day) dissolved in distilled water for one month and GroupIII received sofosbuvir for 2 months. SMGs and EGs sections were processed for H&E, immunohistochemical (using anti-COX-2 and anti-PCNA antibodies) and immunofluorescence (using anti Ŭ-amylase antibody) examination. Results: Compared to control group, groupII displayed atrophic changes in SMGs and EGs which were accentuated in groupIII; shrunken acini, glandular cell vacuolization, nuclear degenerative signs, wide degenerative stromal areas and flattening of excretory ductal lining with stagnant secretion as well as the transformation of few serous glandular cells into mucous-like cells particularly in SMGs of groupIII. Likewise, both glands of groupIII showed significantly increased immunoreactivity to COX-2 in acini and some ductal cells but with a significant decrease in those of groupIII. Regarding PCNA immunoreactivity and Ŭ-amylase immunofluorescence, significantly diminished positivity in the glandular cells of both glands in groupII was detected compared to control group whilst insignificant improvement was elucidated in those of groupIII comparing to groupII except for the significant reactivity to Ŭ-amylase in EGs of groupIII. Conclusions: It was concluded that the oxidative stress associated degenerative changes caused by sofosbuvir in salivary glands after one month of administration seemed to be diminished after two months of administration due to the body acquired drug tolerance to restore the disturbed physiological processes. Hence, the use of anti-oxidants as an adjuvant treatment could be beneficial.

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