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Impact of a moderate-fat meal on the bioavailability of Ribavirin in patients with hepatitis C

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Ribavirin is a nucleoside analog used in hepatitis C therapy. The bioavailability of oral Ribavirin is increased by co-administration with high-fat food. Therefore, Ribavirin manufacturers recommend taking the drug with food. However, moderate fat meal effect on Ribavirin bioavailability is yet not established. Our objectives were to compare the bioavailability of Ribavirin in patients with hepatitis C virus (HCV) genotype 4 (G4), either taken after a moderate-fat meal or in fasting state. We conducted a crossover, randomized, open-label study including 82 naïve patients (49 women and 33 men, mean age 53.40 ± 1.39 years) with chronic hepatitis C at King Abdulaziz Medical City, Riyadh, Saudi Arabia, from 2012 to 2014. Patients received 600 mg of oral Ribavirin on two occasions at least three weeks apart of washout period: first in a fasting state and second time after a moderate fat breakfast containing X18 g fat. Participants in both states underwent a pharmacokinetic profile analysis at 0.5, 1.0 and 2.0 hours after each dose. Compared with the fed state, Ribavirin plasma concentrations were significantly higher in the fasting state at 0.5 hours and 1 hour post-dose ($p=0.004$ and 0.021 , respectively) and significantly lower at 2 hours post-dose ($p=0.011$). However, the area under the curve for Ribavirin concentrations within the first 4 hours post-dose (AUC_{0-4h}) was not different between the two states ($p=0.956$). Among adult patients with HCV G4, there was no significant difference in Ribavirin bioavailability between fasting and fed (X18 gram fat meal) states, thus for better adherence we recommend that physicians consider patient convenience in regards to the timing of Ribavirin oral intake.

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