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PNPLA3 genetic variants determine hepatic steatosis in non-obese chronic hepatitis C patients

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The influence of patatin-like phospholipase domain-containing 3 (*PNPLA3*) genetic variants in the development of liver steatosis in Asian chronic hepatitis C patients remains elusive. A total of 1018 biopsy-proven chronic hepatitis C patients were enrolled for evaluation. The proportions of *PNPLA3* rs738409 GG genotype carriage were 7.8% (44/563), 15.8% (58/367) and 19.3% (17/88) in patients with no (liver fat content <5%), mild (5–33%) and moderate/severe (>66%) hepatic steatosis, respectively (trend $P < 0.001$). Stepwise logistic regression analysis revealed that the strongest factor independently associated with steatosis was the carriage of the *PNPLA3* rs738409 GG genotype (odds ratio [OR]/95% confidence intervals [CI]:2.34/1.557–3.515, $P < 0.001$). Among the patients with BMI < 24 kg/m², carriage of the rs738409 GG genotype was the only factor associated with hepatic steatosis (OR/CI:3.44/1.824–6.500, $P < 0.001$). *PNPLA3* genetic variants had minimal effects on hepatic steatosis among overweight or obese patients. Compared to patients with BMI < 24 kg/m²/non-GG genotype, those with BMI > 24 kg/m²/GG genotype were more likely to have hepatic steatosis (OR/CI:3.87/2.292–6.524, $P < 0.001$). In conclusions, both *PNPLA3* genetic variants and BMI played important roles in hepatic steatosis among Asian chronic hepatitis C patients. However, the genetic effect was mainly restricted to non-obese patients.

Hepatic steatosis is more frequently observed in patients with chronic hepatitis C virus (CHC) infection than in the general population. The frequency of significant steatosis in CHC patients who carry

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