

Relationships among hbv infection and gallbladder disease and diabetes mellitus in Jinchang cohort

Ning Cheng¹, Yubao Ma^{1,2}, Zhiyuan Cheng², Haiyan Li³, Juansheng Li², Jiao Ding³, Xiaobing Hu², Desheng Zhang³, Xiping Shen², Xiaoywei Ren², Tongzhang Zheng⁴ and Yana Bai²

¹Center of Medical Laboratory, Basic Medical College, Lanzhou University, Lanzhou, Gansu, P.R. China

²Institute of Epidemiology and Statistics, School of Public Health, Lanzhou University, Lanzhou, Gansu, P.R. China

³Workers' Hospital of Jinchuan Group Co., Ltd., Jinchang, Gansu, China

⁴Department of Epidemiology, School of Public Health, Brown University, Providence, RI, USA

Objectives: To reveal the relationship between hepatitis B virus (HBV) infection and cholecystitis gallstones, cholecystitis gallstones and diabetes mellitus (DM) in Jinchang cohort.

Methods: A total of 48,000 subjects aged 19 to 90 participated in a baseline examination from 2011 to 2013 in Jinchang cohort. Among the subjects, 33,355 underwent follow-up examination from 2014 to 2015, for average follow-up period of 3.2 years. Logistic and Cox regression were used to analyze the effects of different HBV infection status on cholecystitis and gallstone and different state of cholecystitis gallstone on DM by estimating the odds ratio (OR), hazard ratio (HR) and 95% confidence interval (95% CI), based on Jinchang cohort.

Results: The prevalence of cholecystitis in the Jinchang cohort was 10.20% overall, 13.40% in females, and 8.17% in males. The incidence of cholecystitis in the Jinchang cohort was 6.32% overall, 8.50% in females, and 5.50% in males. Multivariate Cox regression analysis showed that age, drinking, BMI and family history of hypertension are risk factors of cholecystitis and high education level, frequently exercise were protective factors of cholecystitis.

The prevalence of gallstones in the Jinchang cohort was 13.01% overall, 16.64% in females, 10.73% in males. The incidence of gallstones in the Jinchang cohort was 3.23% overall, 3.35% in females, 3.17% in males. Multivariate Cox regression analysis showed that age, BMI, FBG and TG were the risk factors of gallstones and frequently exercise was the protective factors of gallstones.

Compared with the non-infection HBV, HBV infection replication would increase the risk of cholecystitis, the OR (95%CI) were 1.27(1.11-1.46). Compared with non-infection HBV, HBV infection replication would also increase the risk of incidence of cholecystitis and the HR (95%CI) were 1.54(1.26-1.87).

Compared with no gallstones group, gallstones would increase the prevalence risk of DM, the OR (95%CI) were 2.90(2.54-3.30) in females, 2.16(1.99-2.34) overall. Compared with no gallstones group, gallstones also would increase the risk of incidence of DM. The HR (95%CI) were 1.46(1.22-1.76) in males, 2.81(2.25-3.51) in females, 1.83(1.59-2.10) overall.

Conclusions: HBV infection replication would increase the risk of cholecystitis, which was an independent risk for cholecystitis. HBV carriers could increase the risk of gallstones, which was an independent risk for gallstones in males. Gallstones would increase the risk of DM, which was an independent risk factor for DM.

Biography

Ning Cheng has established the Jinchang cohort in China, as the largest multi-metal exposure cohort in the world, who is mainly engaged in the research of prevention and treatment strategies and measures for diabetes and cancer. The risk factors, etiology, pathogenesis, early diagnosis and evaluation of intervention effect of diabetes and tumor were carried out through Jinchang cohort.

chengn@lzu.edu.cn