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Extended Abstract
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Wound Care and Epidemiology 2019: Relationships among hbv infection and gallbladder disease and diabetes mellitus in Jinchang cohort - Ning Cheng, Yubao Ma, Zhiyuan Cheng, Haiyan Li, Juansheng Li, Jiao Ding, Xiaobing Hu, Desheng Zhang, Xiping Shen, Xiaoywei Ren, Tongzhang Zheng and Yana Bai - Workers' Hospital of Jinchuan Group Co., Ltd., Jinchang, Gansu, China

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

Nonalcoholic steatohepatitis (NASH) and gallbladder disease (GD) are members of metabolic syndrome in morbidly obesity. Insulin resistance is a risk factor for NASH and GD. The aim of the present study was to investigate the relationship between insulin resistance (HOMA-IR), liver fibrosis, NASH and GD in morbidly obese patients who presented with fatty liver during preoperative abdominal ultrasonography examination.

We studied 152 morbid obese patients with fatty liver disease including 54 with NASH, 11 with GD and two with concurrent NASH and GD that were undergoing laparoscopic bariatric surgery. Clinical data (gender, age, body mass index [BMI], and associated diseases), laboratory evaluation, and histopathology were obtained from the patient databases. We analyzed the relationship between clinical characteristics, histological parameters, HOMA-IR, and fibrosis stage associated with NASH and GD in morbid obese patients.

Among the 152 patients with fatty liver disease, 93 were females and 59 were males. The mean age was

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30.3 ± 8.9 years and the mean BMI was 44.9 ± 5.4 kg/m2. Fifty-four patients (54/152, 35.5%) were diagnosed as NASH and 11 patients (11/152, 7.2%) received concomitant laparoscopic cholecystectomy because of gallbladder disease (GD). Morbidly obese patients with fatty liver disease and GD were significantly older (P = 0.020), had higher serum levels of cholesterol (P = 0.020) and low-density lipoprotein (LDL)-cholesterol (P = 0.044), and had lower serum levels of total bilirubin (P = 0.044), C-peptide (P = 0.023), and insulin (P = 0.039) than the NASH group. Histopathology factors of hepatic steatosis (P = 0.012), ballooning degeneration (P = 0.001), lobular inflammation (P = 0.019), fibrosis (P = 0.026), and glycogenated nuclei (P = 0.028) were significantly different between NASH and GD groups. However, further multivariate analysis failed to demonstrate any independent clinicopathological factor. The prevalence of chronic hepatitis B and NASH was the same (18%) in all 11 GD patients. Besides, when we compared NASH patients (n = 54) with concurrent NASH-GD patients (n = 2), we found that waist (P = 0.016), waist/hip (P = 0.039), and HOMA-IR (P = 0.040) were independent associated factors. We further assessed the HOMA-IR distribution and the relationship between fibrosis stage in patients with NASH and GD. In the NASH group, HOMA-IR distribution progressively decreased when the severity of fibrosis was plotted as a function of insulin resistance.

The prevalence of NASH in gallbladder disease was 18% in morbid obese population. We concluded that age, serum cholesterol, and low-density lipoprotein cholesterol levels were risk factors associated with gallbladder disease and fatty liver disease. Insulin resistance was more common in concurrent NASH and gallbladder disease. The mechanism between insulin resistance, fibrosis stage, NASH, and gallbladder disease is unknown.

Obesity is a risk factor for gallbladder disease. The authors analyze the prevalence and clinicopathology of gallbladder disease among obese patients in Taiwan. Prevalence and various clinical factors associated with cholelithiasis were studied in 199 patients who were undergoing bariatric surgery for obesity. Clinical data (gender, age, BMI and associated diseases), laboratory evaluation and immunoglobulin G antibodies against Helicobacter pylori were obtained from the patient records. The histopathologic findings of the gallbladder were also examined retrospectively. The degree of acute inflammation, chronic inflammation, cholesterolosis, cholesterol polyp and gastric metaplasia was determined and scored.

Of the patients, 91% (n = 181) were females and 9% (n = 18) were males, age 34.26 ± 8.41 years, with mean BMI 35.28 ± 6.11 kg/m2. The prevalence of cholelithiasis was 10.1%. Increased diastolic blood pressure and HBsAg carrier were the only significant factors associated with cholelithiasis. All obese patients in our study presented with variable degrees of chronic mononuclear cell infiltration in the gallbladder mucosa. Cholesterolosis was present in 100 patients (50.3%), followed by gastric metaplasia (27.1%), cholesterol polyp (16.1%) and acute inflammation (9.5%). Multivariate analysis showed an association between cholelithiasis and acute and chronic inflammation. The predictors of cholesterolosis were BMI, waist circumference and high-sensitivity C-reactive protein. The seroprevalence of H. pylori was 42.2%. Older age, abnormal liver function tests, calcium and HBsAg carrier were significantly different between H. pylori-seropositive and H. pylori-seronegative obese patients. However, we could rarely find H. pylori within the gallbladder mucosa.

Cholelithiasis in Asian obese patients is significantly associated with increased diastolic blood pressure and hepatitis B surface antigen carriers. Because chronic liver disease seems to be a risk factor for cholelithiasis in both non-obese and obese populations, prophylactic cholecystectomy can be considered in obese patients with HBsAg positivity. We did not find evidence that H. pylori has a role in the pathogenesis of gallbladder disease and gallstone by histologic and serologic examinations. Furthermore, mucosal abnormalities of acute and chronic inflammatory cell infiltration are common in obese patients, which related to cholelithiasis.

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