

## The prevalence of gallbladder polyps is higher in HBsAg positive population

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### To the Editor,

In a hospital-based, cross-sectional study, we retrospectively analyzed the medical records of all the subjects undergoing self-referred health examination at one medical center located at Taichung city in Taiwan between 2000 and 2004. Excluding subjects with cholecystectomy, 3070 men (56.0%) and 2411 women (44.0%) were included in the study. Mean age was 49.2 ± 12.3 years (range from 20 to 87). Ultrasonographic findings showed a normal gallbladder in 4920 subjects (89.8%), polyps in 265 subjects (4.8%), stones in 278 subjects (5.1%), and mixed stones/polyps in 18 subjects (0.3%). Thus, the overall prevalence of gallbladder polyps was 5.1% [(265 + 18)/5481]. Data from these 283 subjects were used for further evaluation. Among 283 subjects with polyps (265 + 18), due to missing data, we found that 139 subjects (50.2%) had a single gallbladder polyp and 138 subjects (49.8%) had multiple gallbladder polyps (≥ 2) (Table 1). The age group of 40-64 years had a higher prevalence of gallbladder polyps (5.7%) than the other two groups (3.9% in age group 20-39 years and 4.3% in age group ≥ 65 years). Overall, the prevalence of gallbladder polyps was significantly higher in men than in women (7.0% vs 2.9%,  $P < 0.001$ ). In particular, in age groups 20-39 years and 40-64 years, this prevalence was significantly higher in men than in women ( $P = 0.028$  and  $P < 0.001$ , respectively). In the age group ≥ 65 years, men also had higher prevalence than women, but without reaching a statistically significant difference ( $P > 0.05$ ) (Fig. 1).

Using the chi-square test, additional significantly related factors for gallbladder polyps were age ( $P = 0.030$ ), HBsAg positivity ( $P = 0.002$ ) and cigarette smoking ( $P < 0.001$ ). Particularly, the prevalence of gallbladder polyps in the HBsAg positive group was significantly higher than in the HBsAg negative group (7.4% vs 4.8%,  $P = 0.002$ ). Subjects who smoked had higher prevalence of gallbladder polyps than subjects who did not smoke (7.4% vs 4.4%,  $P < 0.001$ ). No association between gallbladder polyps and clinical parameters, such as obesity, hyperglycemia, dyslipidemia, hepatitis C virus infection, hepatic transaminase and alcohol use, was observed. Only the significantly related factors identified in the chi-square test were further analysed. After controlling for the other covariates, multivariate logistic regression analysis illustrated that

Table 1. — Basic characteristics of the study population

Variable	Number (%)
Gender	
men	3070 (56.0)
women	2411 (44.0)
Age group (years)	
20-39	1191 (21.7)
40-64	3633 (66.3)
≥ 65	657(12.0)
Ultrasonographic findings	
normal	4920 (89.8)
polyps	265 (4.8)
stones	278 (5.1)
mixed stones and polyps	18 (0.3)
Polyp number*	
single	139 (50.2)
multiple ≥ 2	138 (49.8)

\* Imprecise summation of total subjects was due to missing data.

the significantly related factors for gallbladder polyps were male gender (OR = 2.28, 95%CI = 1.69-3.07,  $P < 0.001$ ) and HBsAg positivity (OR = 1.46, 95% CI = 1.08-1.97,  $P = 0.01$ ) (Table 2).

Clinically, a gallbladder polyp is defined as any elevated lesion above the surrounded gallbladder mucosa (1). The prevalence of gallbladder polyps shows regional variation among the populations in the world. It affects approximately 0.32%-9.5% of the adult population (2-4). In some subjects that had undergone cholecystectomy, we were not able to identify the exact cause for cholecystectomy. Therefore, subjects with previous cholecystectomy were excluded from the study. Consequently, the overall prevalence of gallbladder polyps was 5.1% in this study, which may be underestimated.

In the present study, more men than women presented with gallbladder polyps in the different age groups, consistent with previous studies that also showed men predominance (2-4). To the contrary, women were more likely than men to have gallbladder stones in our previous study (7.8% in women vs. 6.5% in men) (5) supporting the concept that gallbladder polyps tend to

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Submission date : 13/12/2009

Acceptance date : 08/02/2010

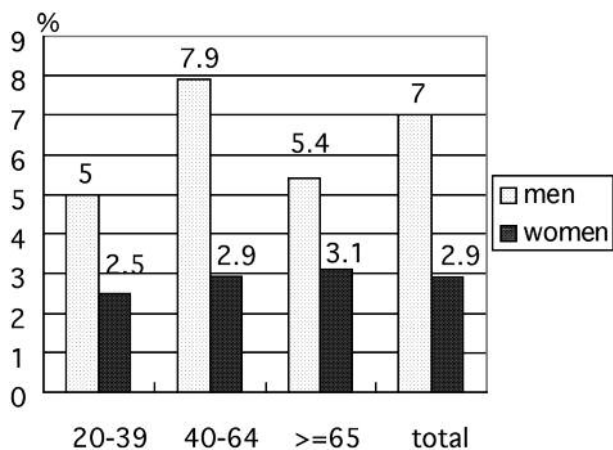


Fig. 1. — Prevalence of gallbladder polyps in gender and three age groups (prevalence was higher in men than in women, 7.0% vs 2.9%,  $P < 0.001$ ).

develop in men, whereas gallbladder stones predominate in women.

After controlling for covariates such as age, gender and smoking, multivariate logistic regression analysis revealed HBsAg positivity still being a related factor for gallbladder polyps. To date, only two studies found that HBsAg positivity is related to gallbladder polyps (3,4). Because prospective studies are lacking, we can not make any expanded explanation why HBsAg positivity is related to gallbladder polyps. More studies are required to explore, for instance, the impact of hepatitis B vaccination on the prevalence of gallbladder polyps.

Table 2. — Odds ratio of related factors for gallbladder polyps by Multivariate Logistic Regression

Variable	OR	95% CI	P value
Age (every one year)	1.00	0.99-1.01	0.89
Men (women as reference)	2.28	1.69-3.07	< 0.001
HBsAg (negative as reference)	1.46	1.08-1.97	0.01
Smoker (nonsmoker as reference)	1.27	0.97-1.66	0.09

In conclusion, the prevalence of gallbladder polyps in the HBsAg positive population is significantly higher than in the HBsAg negative population. Our finding suggests that male gender and HBsAg positivity are related factors for gallbladder polyps, independent of numerous baseline confounding factors. We really hope that this study will provide basic information for further studies on gallbladder polyps.

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