Sonographic Screening of the Abdomen During Health Checkups: A Hospital-based Study

Kim-Choy Ng and Shih-Wei Lai

Background: The use of abdominal sonography offers an important, non-invasive means of evaluating abdominal disorders, and it is a procedure that is readily available in the primary health care setting. The purpose of this study was to determine the prevalence of findings on abdominal sonography and how they relate to the gender and age of the patient.

Materials and Methods: This was a hospital-based descriptive study. We retrospectively analyzed the medical records of all patients who received health checkups under a private-payment scheme at China Medical University Hospital, Taichung, Taiwan, from 2000 to 2002. In total, 3,053 patients with common sonographic findings were included for further analysis. Abdominal sonography was performed by gastroenterologists. The Chi-squared test was used in analysis.

Results: There were 1,342 women (44%) and 1,711 men (56%), with a mean age of 49.7 ± 12.3 years (range, 20–87 years), included in the study. The sonographic findings were as follows: fatty liver (41.6%), gallstone (5.9%), gallbladder polyp (4.0%), hepatic cyst (3.9%), renal cyst (4.1%), hepatic hemangioma (1.8%), and splenomegaly (1.6%). Using the Chi-squared test, the prevalence of fatty liver, gallbladder polyp, renal cyst, and splenomegaly was found to be higher in men than in women; the difference was statistically significant. The prevalence of fatty liver, gallstone, hepatic cyst, and renal cyst increased with age in both men and women, also with statistical significance.

Conclusion: This study may provide background data for future investigation of the prevalence of findings on abdominal sonography in the primary health care setting.

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KEY WORDS: • abdominal sonography • fatty liver • gallstone• gallbladder polyp • hepatic cyst

Departments of Emergency Medicine and 'Family Medicine, China Medical University Hospital, Taichung, Taiwan. Address correspondence and reprint requests to: Dr. Shih-Wei Lai, Department of Family Medicine, China Medical University Hospital, 2 Yuh-Der Road, Taichung 404, Taiwan. E-mail: wei@www.cmuh.org.tw

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INTRODUCTION

Abdominal sonographic examination plays an important role in the evaluation of patients with abdominal disorders [1–4]. However, patients are often symptomless even when sonography shows the presence of fatty liver, gallstone, gallbladder polyp, hepatic cyst, renal cyst or hepatic hemangioma [2–7]. Few studies of sonographic screening of the abdomen have been reported in Taiwan [5]. We decided it was time to address this aspect of the health status of the people in this country, and conducted a retrospective study to determine the prevalence of findings on abdominal sonographic screening and to evaluate the relationship between them and gender or age.

PATIENTS AND METHODS

A hospital-based descriptive study was carried out from 2000 to 2002. We retrospectively analyzed patients who received health checkups under a private-payment scheme at the Department of Family Medicine, China Medical University Hospital, Taichung, Taiwan. Abdominal sonographic findings with crude prevalence of less than 1% were not documented. In total, 3,053 patients with common sonographic findings were included for further analysis.

Abdominal sonography was performed by gastroenterologists using a high resolution, real-time machine (TOSHIBA Sonolayer SSA-270A; convex-type 3.5 MHz transducer, Tochigi-Ken, Japan). Fatty liver was diagnosed based on the classic findings of increased liver–kidney contrast, bright liver, fat attenuation, blurred vessels, and poor visualization of the gallbladder wall and diaphragm [8–10]. Gallstone was diagnosed by the presence of one or more movable hyperechoic structures with an acoustic shadow within the gallbladder [4,11]. Gallbladder polyps were diagnosed by the presence of one or more fixed hyperechoic structures without an acoustic shadow in the gallbladder [12]. Hepatic cyst or renal cyst was diagnosed by findings of one or more hypoechoic structures with posterior enhancement within the liver or kidney, respectively. Splenomegaly was diagnosed by a spleen size index ≥ 20 cm² (calculated as the product of the oblique and diagonal diameters) [13].

Statistical analysis was performed by SPSS (Chinese Version 10.0, Sinter Information Corp., Taiwan). The Chi-squared test was used to determine the prevalence of abdominal sonographic findings with gender and age. A p value of less than 0.05 was considered statistically significant.

RESULTS

Table 1 shows the distribution of the gender and age of patients in this study. There were 1,342 women (44%) and 1,711 men (56%), with a mean age of 49.7 ± 12.3 years (range, 20–87 years). The prevalence of findings on abdominal sonography were as follows: fatty liver (41.6%), gallstone (5.9%), gallbladder polyp (4.0%), hepatic cyst (3.9%), renal cyst (4.1%), hepatic hemangioma (1.8%), and splenomegaly (1.6%) (Table 2). The Chi-squared test showed a statistically significantly greater prevalence of fatty liver, gallbladder polyp, renal cyst, and splenomegaly in men than in women. The prevalence of fatty liver, gallstone, hepatic cyst, and renal cyst increased with age in both men and women; this trend was statistically significant.

DISCUSSION

The reported prevalence of findings on abdominal sonography varies with race, gender, and age [5–7,14–17]. The overall prevalence of fatty liver in our study was 41.6%; this is higher than in previous reports [5,8]. Age and male sex were high risk factors for fatty liver in our study.

The prevalence of gallstone reported in Western countries is approximately 15.5% to 18.8% in men and 23.8% to 30.2% in women [11,18]. The prevalence in our study was 5.9%. In a study by Chen et al [19], age was a risk factor for gallstone, and our study confirmed this finding.

In another study by Chen et al [20], the prevalence of gallbladder polyp was 6.9%, and it was found...
more commonly in men. In our study, the prevalence was 4%, and male sex was again a risk factor.

Lu et al found the prevalence of hepatic cyst to be 0.9% [5]. It was 3.9% in our study, and age was a risk factor. The prevalence of renal cyst was 2.9% in Lu et al’s study. We found it to be 4.1%; and age and male sex were high risk factors.

The prevalence of hepatic hemangioma in our study was 1.8%, which is similar to that in Lu et al’s study (1.4%). The prevalence of splenomegaly has rarely been reported; we found a prevalence of 1.6%, and men were at higher risk.

The subjects included in this study may have been sufficiently concerned about their health and health problems such as fatty liver or gallstones to have sought investigation. If this is the case, the prevalence may have been overestimated. As this was a descriptive study, only facts were revealed and no cause–effect relationship or etiologic finding was explored. Nevertheless, we hope the results of this study will be used as background data for further comparison of the prevalence of abdominal sonographic findings in the primary health care setting.

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**REFERENCES**


