

Inadequate awareness of hepatitis C among nonspecialist physicians in China

Bo Feng¹
Jin Zhang²
Lai Wei¹

¹Hepatology Institute, Peking University People's Hospital, Beijing, People's Republic of China; ²DXY.cn, Hangzhou, People's Republic of China

Background/purpose: Hepatitis C virus (HCV) is a major public health problem and can cause severe liver disease. The public has little understanding of hepatitis C. Therefore, a survey was performed to investigate the awareness of nonspecialists in China of hepatitis C.

Methods: A questionnaire on hepatitis C was publicized on the medical community site DXY.cn from April 15 to July 15, 2009. The questionnaire included ten questions and covered the etiology, epidemiology, diagnosis, treatment, and prevention of hepatitis C.

Results: About 1362 physicians from various regions, hospitals, and departments in China took part in the survey. Eleven percent mistakenly believed that the disease was not transmitted from mother to infant, by sharing a needle or syringe, by sharing a razor or toothbrush, or by having sex with a partner with HCV infection. Sixty-two percent did not regard anti-HCV antibody detection as a routine procedure for hospitals. Forty-four percent of respondents indicated that they would not advise a patient who tested positive for anti-HCV antibody to consult a specialist. Seventy-one percent thought that hepatitis C was incurable or had a very low cure rate. Nearly 50% thought that there were no effective treatments for hepatitis C.

Conclusion: Chinese nonspecialists have a little understanding of hepatitis C, which may have a negative effect on the prevention and treatment of hepatitis C.

Keywords: awareness, nonspecialist, hepatitis C, China

Introduction

The hepatitis C virus (HCV) is a major public health problem and one of the leading causes of chronic liver disease in the world.¹ The World Health Organization recently estimated that 130–170 million people are chronically infected with HCV and that 3–4 million people become infected with HCV each year.² In China, 3.2% of the population is positive for anti-HCV antibodies and about 40 million people are infected with HCV. In northeast China, 4.6% of the population is positive for anti-HCV antibodies. The prevalence of HCV infection increases with age.³

Early detection of hepatitis C is essential to prevent the progression of hepatitis C to cirrhosis and hepatocellular carcinoma. A good understanding of hepatitis C is a prerequisite for preventing its spread and for controlling it. However, many people, including some medical practitioners, have a low level of awareness of HCV infection. In some instances, hepatitis C infection remains undetected because no symptoms are displayed. Moreover, some HCV-positive people have not been advised to seek further advice because of their medical practitioner's poor awareness of hepatitis C. Some studies reported that the majority of health professionals lack the knowledge and skills required to effectively care for people with HCV and that social prejudice towards self-reported

Correspondence: Lai Wei
Hepatology Institute, Peking University People's Hospital, No 11 Xizhimen South Street, Beijing 100044, People's Republic of China
Tel +86 10 8832 5566
Fax +86 10 6832 2662
Email weilai@pkuph.edu.cn

behavior and a fear of contracting hepatitis C negatively affect their attitudes to these patients.^{4,5} DXY.cn is a professional website for biomedical technology in China and attracts visits from more than 2.4 million medical, pharmaceutical, and life science professionals per year. More than 90% of physicians younger than 45 years of age are aware of it. After the second “World Hepatitis Day”, these authors used the DXY.cn website from April 15 to July 15 to determine the awareness of medical staff from nonspecialist departments (especially surgical departments) of hepatitis C.

Methods

These authors published a questionnaire on hepatitis C on www.dxy.cn on April 15, 2009. All visitors to the website could sign up and answer the questions online. Only data from nonspecialists were analyzed. The section on basic information included questions about the respondent's city, hospital level, department, and professional title. The questions are listed in Table 1.

Results

Characteristics of respondents

About 1362 physicians from 30 provinces, autonomous regions, and municipalities in China took part in the survey. The respondents were from more than 200 cities; most respondents were from Beijing (95), followed by Shanghai (65), Wuhan (53), Guangzhou (52), and Changsha (42). Sixty percent of respondents were associated with Grade III hospitals, 28% percent with Grade II hospitals, and the remainder were associated with Grade I hospitals and community health service centers (Table 2). These respondents were associated with 13 departments, including departments of general surgery (13%), orthopedics (12%), gastroenterology (7%), cardiology (6%), neurology (5%), gynecology and obstetrics (4%), cardiothoracic surgery (3%), ophthalmology and ear-nose and throat (4%), and the remainder (46%) were associated with departments other than infectious disease and hepatology departments (Table 2). It should be noted that hepatitis C is treated in hepatology or infectious disease departments rather than in a department of gastroenterology in China. Forty-nine percent of respondents were resident physicians, 27% were attending physicians, 10% were associate chief physicians or chief physicians, and 14% had other titles (Table 2).

Awareness of HCV transmission

In response to the question “Which is not a transmission route for hepatitis C?” 89% of respondents thought that hepatitis C was

Table 1 The hepatitis C questionnaire

1. Which is not a transmission route of hepatitis C?
 - A. Mother-infant transmission
 - B. Sharing a needle or syringe
 - C. Sharing a razor or toothbrush
 - D. Kissing, hugging, or sharing eating utensils
 - E. Sexual partners with HCV infection
2. When to detect anti-HCV antibodies?
 - A. Routine examination in hospital
 - B. Before performing invasive operations
 - C. When hurt by mistake in hospital
 - D. When requested by a patient
 - E. Other
3. What percentage of your patients has been tested for anti-HCV antibodies?
 - A. 0%–10%
 - B. 10%–20%
 - C. 20%–30%
 - D. 30%–40%
 - E. More than 50%
4. What does “positive for anti-HCV antibodies” mean?
 - A. Chronic HCV infection
 - B. Having been infected previously
 - C. HCV in the blood
 - D. Immunity to HCV
5. How should a doctor react if he (or she) identifies a person positive for anti-HCV antibodies?
 - A. A positive anti-HCV result is not my business in my current consulting post
 - B. Inform the patient only
 - C. Refer the patient to the appropriate department at the hospital
 - D. Refer the patient to a specialist
 - E. Improve personal protective measures against infection
6. What should a doctor do for an anti-HCV antibody-positive patient who has no clinical manifestations and a normal ALT level?
 - A. Nothing in particular
 - B. Occasionally refer to a specialist
 - C. Definitely refer to a specialist
 - D. Other
7. What is your viewpoint on hepatitis C treatment?
 - A. Incurable
 - B. Low cure rate
 - C. High cure rate
 - D. Unknown
8. With regard to the influence of hepatitis C, which is correct?
 - A. HCV resolves spontaneously in the majority of adults
 - B. There is no severe liver injury in hepatitis C patients
 - C. There are obvious symptoms at the onset of the disease
 - D. HCV is prone to evolve to liver cirrhosis and hepatocellular carcinoma
9. Which measure cannot prevent hepatitis C?
 - A. Strict selection of blood donors
 - B. Promotion of single-use syringes and sterilizing medical apparatus and instruments
 - C. Wearing gloves when coming into contact with a patient's body fluids
 - D. Inoculating with hepatitis C vaccine
 - E. Not sharing a razor or toothbrush with patients

(Continued)

Table 1 (Continued)

10. Of the following viewpoints about hepatitis C and hepatitis B, which are correct?
- Hepatitis B is the main cause of liver cirrhosis and hepatocellular carcinoma, but hepatitis C is not
 - Anti-HCV and anti-HBV are protective antibodies
 - There are no HCV carriers, and patients with HCV should be treated
 - Currently there are no effective treatments for hepatitis B and hepatitis C

Abbreviations: ALT, alanine aminotransferase; HCV, hepatitis C virus; HBV, hepatitis B virus.

not transmitted by kissing, hugging, or sharing eating utensils. However, 11% of the clinical practitioners mistakenly believed that the disease was not transmitted from mother to infant, by sharing a needle or syringe, by sharing a razor or toothbrush, or by having sex with a partner with HCV infection (Figure 1).

Awareness of HCV detection measures

Thirty-eight percent of respondents considered anti-HCV antibody detection a routine examination in hospitals,

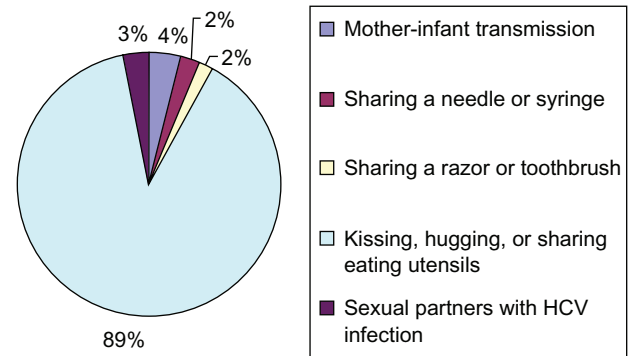


Figure 1 Awareness of the respondents of hepatitis C virus (HCV) transmission. Eighty-nine percent of the respondents thought that hepatitis C was not transmitted by kissing, hugging, or sharing eating utensils. Eleven percent mistakenly believed that the disease is not transmitted from mother to infant, by sharing a needle or syringe, by sharing a razor or toothbrush, or by having sex with a partner with HCV infection.

42% tested patients for HCV before performing invasive operations, and 6% tested for HCV at the patient's request. Only 5% of respondents tested themselves for HCV when they were accidentally injured at the hospital (Figure 2) and 8% thought that the anti-HCV antibody was a protective antibody (Figure 3).

Table 2 The demographics of the respondent physicians

	Demographics and source of respondents	Number of respondents n (%)
Age (years)	<30	844 (62)
	30–40	354 (26)
	≥40	164 (12)
Years in practice	<5	613 (45)
	5–10	422 (31)
	≥10	327 (24)
Hospital level*	Grade III	817 (60)
	Grade II	381 (28)
	Grade I	82 (6)
	Private clinic	82 (6%)
Department	General surgery	177 (13)
	Orthopedics	164 (12)
	Gastroenterology	95 (7)
	Cardiology	82 (6)
	Neurology	68 (5)
	Gynecology and obstetrics	54 (4)
	Cardiothoracic surgery	41 (3)
	Ophthalmology and ear-nose and throat	54 (4)
	Other**	627 (46)
Professional title	Resident physician	668 (49)
	Attending physician	368 (27)
	Associate chief physician or chief physician	136 (10)
	Other	190 (14)

Notes: *According to the "rules to be in charge of hospitals by grade," hospital grade is a comprehensive indicator that reflects a hospital's scale and technical proficiency in China. Grade III hospitals are the largest, most resource-intensive, and most proficient; **Other includes all clinical departments except the eight listed above. Data for these departments were pooled because each constituted less than 3% of the total number of respondents.

Attitude of respondents to patients with HCV

The majority of nonspecialists were aware of the dangers of hepatitis C. Seventy-six percent knew that hepatitis C causes liver cirrhosis and hepatocellular carcinoma. When presented with a positive test result for HCV for one of their patients, 56% of the respondents indicated that they referred such patients to a specialist, 13% informed the patients themselves, and 20% informed the appropriate department at the hospital. Additionally, 5% of the respondents took measures

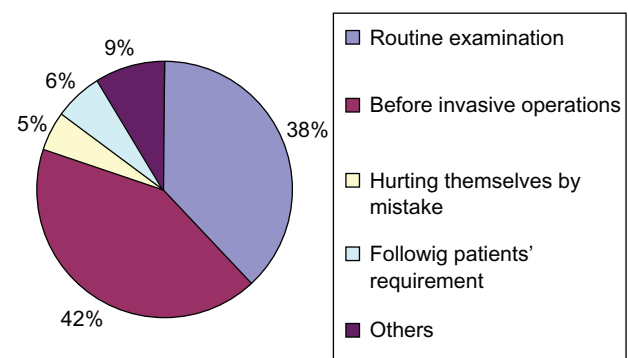


Figure 2 Awareness of anti-hepatitis C virus (HCV) antibody detection. Thirty-eight percent of respondents regarded anti-HCV antibody detection as a routine examination in hospital, 42% tested a patient for HCV before performing an invasive operation, and 6% tested for HCV at the patient's request. Only 5% of the respondents tested themselves for anti-HCV antibodies when they were accidentally injured at the hospital.

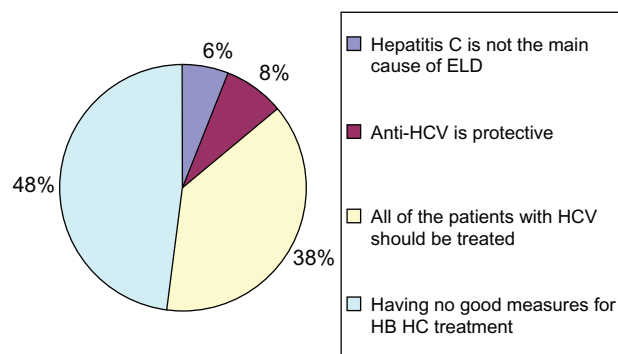


Figure 3 Awareness of basic viewpoints about hepatitis C (HC) and hepatitis B (HB). Eight percent of respondents thought that anti-hepatitis C virus (HCV) is a protective antibody.

Abbreviation: ELD, end-stage liver disease.

to increase their personal protection against infection when dealing with such patients and 6% took no additional protective measures (Figure 4).

If a patient had no clinical symptoms but was positive for HCV and had normal liver function, 74% of the respondents indicated that they would refer the patient to a specialist, 11% indicated that they would occasionally refer such patients to a specialist, and 12% would take no action (Figure 5).

Awareness of hepatitis C treatment

Seventy-one percent of respondents thought that hepatitis C is incurable or has a very low rate of cure, 14% did not know how to treat hepatitis C, and only 15% knew that the rate of cure of hepatitis C is high (Figure 6).

Thirty-seven percent thought that there is no such thing as a carrier of HCV and that patients with HCV should be treated. Nearly 50% thought there are no effective treatments for hepatitis C (Figure 3).

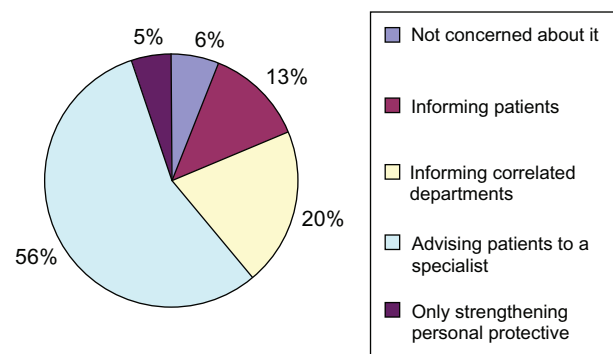


Figure 4 Attitude of the respondents to patients who are positive for hepatitis C virus. Fifty-six percent of respondents indicated that they would refer the patients to a specialist, 13% would inform the patients themselves, and 20% would inform the relevant department at the hospital.

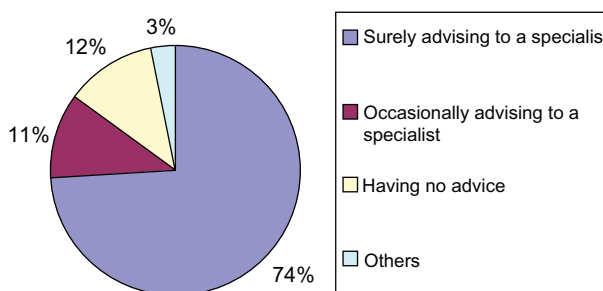


Figure 5 Attitude of the respondents to anti-hepatitis C virus-positive patients without clinical manifestations or elevated alanine aminotransferase levels. Of the respondents, 74% indicated that they would definitely refer the patients to a specialist, 11% would occasionally refer a patient to a specialist, and 12% gave no advice.

Discussion

Because of the decrease in the prevalence of hepatitis B as a result of widespread use of the hepatitis B vaccine, hepatitis C has attracted increasing attention in recent years. The degree to which the public and medical staff understands hepatitis C is important for the prevention and treatment of hepatitis C. This investigation was conducted to investigate the awareness of hepatitis C of nonspecialist physicians.

Of the clinical practitioners surveyed, 11% did not understand the transmission routes of hepatitis C. They were not aware that HCV is transmitted from mother to infant, by sharing a needle or syringe, by sharing a razor or toothbrush, or by having sex with a partner with HCV infection. When asked how hepatitis C infection could be prevented, 33% mistakenly believed that it could not be prevented by strict selection of blood donors, by promoting single-use syringes, by sterilizing medical apparatus and instruments, by wearing gloves when in contact with patients' body fluids, or by not sharing a razor or a toothbrush with a patient. The primary source of HCV transmission is HCV-infected blood and blood products. Injection of drugs is an important mode

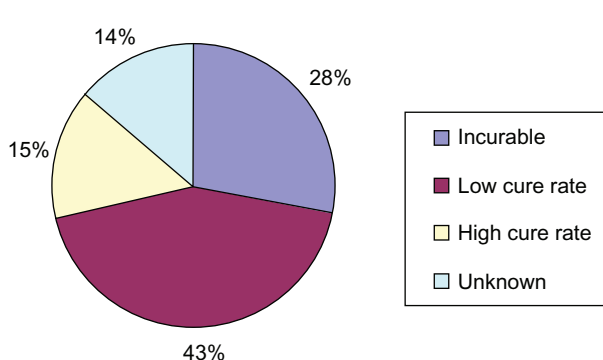


Figure 6 Awareness of the respondents of hepatitis C treatment. Of the respondents, 71% thought that hepatitis C was incurable or had a very low cure rate, 14% did not understand the treatment of hepatitis C, and only 15% knew that it has a high cure rate.

of transmission in some regions, and other potential sources of HCV transmission include exposure to an infected sexual partner or multiple sexual partners and frequent exposure to infected blood. Practices such as folk medicine, body piercing, tattooing, and even commercial barbering have been suggested as routes of HCV transmission.⁶ Knowledge of probable transmission routes is essential for the prevention of hepatitis C.

Two classes of assays are used in the diagnosis of HCV infection: anti-HCV antibody detection and HCV ribonucleic acid detection. Anti-HCV antibody detection is used to screen for and to diagnose HCV infection. Compared with HCV ribonucleic acid detection, anti-HCV antibody detection is more appropriate for medical institutions. The specificity of current enzyme immunoassays for anti-HCV antibody detection is greater than 99%.⁷ In this survey, 62% of respondents did not think that anti-HCV antibody detection should be a routine analysis for patients in hospital. Additionally, in most patients, the manifestation of HCV infection is absent or mild. It is reasonable to assume that few patients with HCV infection are identified in clinical practices.

Nearly 50% of the respondents did not refer patients who were positive for HCV to a specialist for treatment. When confronted with a patient with no clinical symptoms who is positive for HCV and has normal liver function, 12% of respondents indicated that they would offer no advice. In reality, 55%–85% of people with acute hepatitis C will develop chronic hepatitis C.^{8,9} Of such individuals, 5%–20% will develop cirrhosis over a period of 20–25 years.¹⁰ Persons with HCV-related cirrhosis are at risk of developing end-stage liver disease as well as hepatocellular carcinoma. Clinical practitioners should take the following actions when it becomes apparent that a patient is positive for HCV: refer the patient to a specialist for further diagnosis and treatment, counsel the patient regarding prevention of the spread of HCV to others, inform the appropriate departments (eg, the infection management division of the hospital and the center for disease control), and increase personal protection against infection.

Only 15% of respondents knew that hepatitis C had a high cure rate and 85% had no knowledge of the efficacy of hepatitis C therapy. Nearly 50% thought that there were no effective hepatitis C treatments. In reality, treatment of hepatitis C patients can prevent complications associated with HCV infection. Infection is considered eradicated when there is a sustained virologic response (SVR), defined as the absence of HCV ribonucleic acid in serum according to a sensitive test at the end of treatment and 6 months thereafter. There have been substantial improvements in the success rate of

HCV treatment. The highest overall SVR rates (54%–56%) were achieved with a combination of weekly subcutaneous injections of long-acting pegylated interferon alfa and oral ribavirin, which represents the current standard of care. A recent large multicenter, multinational trial reported an SVR rate of 76% for patients with genotype 2 or 3 infections.¹¹

Chinese Center for Disease Control and Prevention statistics show that the number of newly reported cases of hepatitis C is increasing every year. Between 2003 and 2008, the number of hepatitis C cases in China increased nearly fivefold to 110,000.¹² At the same time, the proportion of HCV-caused hepatocellular carcinoma patients increased. Hepatitis C infection confers a heavy emotional and economic burden on patients, families, and society, and is a public health problem. It is the common responsibility of all medical staff to prevent and treat hepatitis C. Medical practitioners should be well informed about hepatitis C and actively publicize information about hepatitis C among the public. Implementation of prevention and treatment strategies based on early discovery, diagnosis, and treatment of hepatitis C is essential for curbing the spread of hepatitis C and reducing its incidence.

Conclusion

This survey involved 1362 physicians from various regions, hospitals, and departments in China. It showed that nonspecialists have little understanding of the etiology, epidemiology, diagnosis, treatment, or prevention of hepatitis C, which may have a negative effect on the prevention and treatment of hepatitis C. To reverse this situation, medical institutions at all levels, especially the Chinese Center for Disease Control and Prevention, the Chinese Foundation for Hepatitis Prevention and Control, and the Chinese Society of Hepatology, should vigorously promote basic knowledge about hepatitis C, and nonspecialists should undergo continuous medical education on hepatitis C. It is also important for nonspecialists to learn through interaction with specialists.

Disclosure

The authors report no conflicts of interest in this work.

References

1. Williams R. Global challenges in liver disease. *Hepatology*. 2006;44(3): 521–526.
2. World Health Organization. Hepatitis C. Fact sheet no. 69. Jun 2011. Available from: <http://www.who.int/mediacentre/factsheets/fs164/en/index.html>. Accessed September 16, 2011.
3. Xia GL, Liu CB, Cao HL, et al. Prevalence of hepatitis B and C virus infections in the general Chinese population: results from a nationwide cross-sectional seroepidemiologic study of hepatitis A, B, C, D, and E virus infections in China, 1992. *Int Hepatol Commun*. 1996;5(1): 62–73.

4. Richmond JA, Dunning TL, Desmond PV. Health professionals' attitudes toward caring for people with hepatitis C. *J Viral Hepat.* 2007;14(9):624–632.
5. Frazer K, Glacken M, Coughlan B, Staines B, Daly L. Hepatitis C virus in primary care: survey of nurses' attitudes to caring. *J Adv Nurs.* 2011;67(3):598–608.
6. Ghany MG, Strader DB, Thomas DL, Seeff LB; American Association for the Study of Liver Diseases. Diagnosis, management, and treatment of hepatitis C: an update. *Hepatology.* 2009;49(4):1335–1374.
7. Colin C, Lanoir D, Touzet S, et al. Sensitivity and specificity of third-generation hepatitis C virus antibody detection assays: an analysis of the literature. *J Viral Hepat.* 2001;8(2):87–95.
8. Thomas DL, Seeff LB. Natural history of hepatitis C. *Clin Liver Dis.* 2005;9(3):383–398.
9. Seeff LB, Hoofnagle JH. National Institutes of Health Consensus Development Conference: management of hepatitis C. *Hepatology.* 2002;36(5 Suppl 1):S1–S2.
10. Liang TJ, Rehermann B, Seeff LB, Hoofnagle JH. Pathogenesis, natural history, treatment, and prevention of hepatitis C. *Ann Intern Med.* 2000;132(4):296–305.
11. Shiffman ML, Suter F, Bacon BR, et al. Peginterferon alfa-2a and ribavirin for 16 or 24 weeks in HCV genotype 2 or 3. *N Engl J Med.* 2007;357(2):124–134.
12. Ministry of Health of the People's Republic of China. February 2004 [updated February 2009]. Available from: <http://www.moh.gov.cn/publicfiles/business/htmlfiles/mohbgt/pw10403/200804/26732.htm> and <http://www.moh.gov.cn/publicfiles/business/htmlfiles/mohbgt/s3582/200902/39079.htm>. Accessed September 20, 2011.

Advances in Medical Education and Practice

Publish your work in this journal

Advances in Medical Education and Practice is an international, peer-reviewed, open access journal that aims to present and publish research on Medical Education covering medical, dental, nursing and allied healthcare professional education. The journal covers undergraduate education, postgraduate training and continuing medical education

Submit your manuscript here: <http://www.dovepress.com/advances-in-medical-education-and-practice-journal>

Dovepress

including emerging trends and innovative models linking education, research, and healthcare services. The manuscript management system is completely online and includes a very quick and fair peer-review system. Visit <http://www.dovepress.com/testimonials.php> to read real quotes from published authors.