Clinical Research and Methods

Hepatitis C Identification and Management by Family Physicians

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Background and Objectives: *Many people with hepatitis C receive all or most of their care from primary care physicians, yet little information exists about the practice patterns, knowledge, and beliefs and attitudes of family physicians related to hepatitis C.* Methods: *We mailed a written survey to a random sample of active members of the American Academy of Family Physicians.* Results: *Nearly all respondents (94%) reported at least one patient with hepatitis C in their practice, and 66% had diagnosed at least one new case of hepatitis C in the past year. While most respondents (85%) correctly identified common hepatitis C risk factors, only 63% reported routinely asking patients about those risk factors. Respondents (74%) preferred to involve specialists in the care of hepatitis C patients, but half (50%) reported barriers to referral. A small number (5%) of respondents have prescribed antiviral medication within the past year. Most respondents think family physicians should screen (94%), diagnose (98%), and provide general care (69%) for hepatitis C patients.* Conclusions: *Family physicians know how to identify high-risk people and test for hepatitis C. Most prefer to refer patients with hepatitis C to specialists for workup and treatment but report frequent barriers to those referrals.*

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Hepatitis C is the most common blood-borne pathogen in humans and the most common cause of liver failure and reason for liver transplantation in the United States.[1] In a large population-based study, 1.8% (3.9 million) of a large household-based sample was positive for anti-hepatitis C virus antibody.[2] Of these, 74% (2.7 million) had viremia, an indicator of chronic infection. As many as half of these persons were unaware they were infected.[3,4]

While most research on the diagnosis and treatment of hepatitis C has been conducted in specialty clinics,[5] many people with hepatitis C receive all or most of their care from primary care physicians.[5,6] Yet, little information exists about the knowledge, practice patterns, and beliefs of family physicians about hepatitis C. The Future of Family Medicine (FFM) project[7] has proposed that quality and outcomes be one of the tenets of the new model of care. To meet this goal, it is important for us to know the current state of practice. This study's purpose is to better understand family physicians' practice patterns, knowledge, beliefs, and attitudes regarding the identification and management of hepatitis C.

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Methods

Subjects

Using Dillman's mail survey techniques,[8] we surveyed 1,200 family physicians randomly selected from the active membership roster of the American Academy of Family Physicians (AAFP). The first round of surveys was mailed in June 2003.

Survey Instrument

We developed the survey instrument based on existing literature and iterative discussions. The survey was pilot tested using focus groups of family physicians during the March 2003 Convocation of the AAFP National Research Network and by 17 Wisconsin-based family physicians and physician assistants. The final survey contained 30 items and addressed the following domains: practice patterns, knowledge, and beliefs and attitudes. Practice patterns assessed included

the number of hepatitis C patients in the practice; the number of new diagnoses made annually; identification approaches for hepatitis C; management of hepatitis C, including counseling and referral preferences; the use of antivirals; and the use of references. Knowledge assessed included risk factors, screening blood tests, counseling, and antiviral efficacy and side effects. Beliefs and attitudes assessed included the importance of hepatitis C to society, comfort in identifying and managing hepatitis C, and the proper role of family physicians in caring for persons with hepatitis C.

Data Analysis

Descriptive data are reported. The sample size of 1,200 was large enough by conventional standards to adequately describe the frequency of response in this population within an acceptable margin of error for both 5-point Likert scale items (95%, ± 2.5%) and dichotomous survey items (95%, ± 2.5%) with the assumption of a 50% response rate, which was achieved.

All analyses used SPSS, version 11.5.1 (SPSS for Windows, SPSS Inc, Chicago). The study was approved and designated exempt by the University of Missouri-Kansas City Social Science Institutional Review Board.

Results

A total of 634 (53%) surveys were completed and returned. Fifteen surveys were excluded due to lack of data on percent of time spend in patient care or a report that the respondent spent less than 5% of time in patient care. Demographic characteristics of the respondents are summarized in Table 1. Survey respondents did not differ significantly from survey nonrespondents or from the AAFP active membership roster in any of the available demographic and practice variables.

Practice Patterns

Estimated Number of Hepatitis C Patients in Practice. Nearly all respondents (94%) reported at least one patient with hepatitis C in their practice, 48% care for six or more patients with hepatitis C, and 21% reported that 11 or more patients with hepatitis C are currently under their care. Two thirds of respondents had diagnosed at least one new case of hepatitis C in the past year.

Identification of Persons at Risk. Respondents were asked what strategies they use to identify persons at risk for hepatitis C to offer blood testing for the virus, and their responses are listed in Table 2. Relatively few respondents reported using standardized history sheets to assess for hepatitis C risk factors (17%), though a larger percent reported screening (method not specified) all new patients (32%) or asking patients about risk factors (63%). Most (85%) offer hepatitis C testing to patients with elevated liver function tests and to patients they consider to be at high risk for hepatitis C (70%).

Hepatitis C Screening Blood Tests. The most common blood test used to screen patients for hepatitis C was hepatitis C antibody testing (91%), followed by liver function testing (59%). Only a few respondents indicated using only liver function tests for hepatitis C screening (2%). Other tests reported and their frequencies are shown in Table 2. We did not ask questions about confirmatory testing.

Counseling. After a diagnosis of hepatitis C is made, most respondents said they counsel their patients with hepatitis C not to use alcohol (94%), not to use

Table 1

Respondent Demographics and Practice Characteristics

	Mean	*(Range)*	*SD**	*%*	*(#)*
Demographics					
Age	45.5	(29–76)	8.9		
Years in practice	14.3	(1–46)	9.2		
Percent time in patient care*	88.5	(5–100)			
Percent male				69	(425)
Practice characteristics					
Community description					
Town ≤ 25,000				35	(218)
Town > 25,000 but < 100,000				25	(155)
City of 100,000 to 500,000				17	(107)
City of > 500,000				22	(135)
Practice type					
Solo practice or single-specialty group				66	(394)
Multiple-specialty group				20	(120)
Academic or other				15	(90)
Insurance of patients in practice					
Medicaid				14	(85)
Medicare				24	(145)
Private				50	(302)
Self-pay/uninsured				12	(72)

Sample size: 634 respondents. Sample taken from the active members of the American Academy of Family Physicians (AAFP).

SD—standard deviation

* To target physicians in full-time practice, 85% of the sample was drawn from active members reporting at least 80% professional effort in direct patient care to the AAFP. The remaining 15% of the sample was drawn from the active members who had reported between 40% and 79% of effort in patient care on their most recent practice profile. Survey respondents who did not indicate the percentage of time they spend in patient care and respondents who indicated they spent less than 5% of time in patient care were excluded.

Table 2

Hepatitis C Risk Factors and Screening by Family Physicians

	%	(#)
Screening approach: method of identifying persons to test for hepatitis C*		
Elevated liver enzymes	85	(523)
High-risk individuals	70	(429)
Ask about risk factors	63	(383)
Patient requests screening	57	(352)
All new patients	32	(193)
Standardized history sheet	17	(104)
All adults	<1	(2)
Blood tests used to screen for hepatitis C*		
Anti-HCV (antibody test)	91	(550)
Liver enzyme testing	59	(356)
RIBA	12	(71)
PCR qualitative	10	(57)
Viral load	9	(54)
PCR quantitative	8	(47)
I let the lab choose	4	(26)
Referral to specialist	1	(5)
Other	4	(22)
Risk factors: percent of providers who would test for hepatitis C given each risk factor		
Elevated liver enzymes	98	(594)
History of intravenous drug use	98	(589)
Hepatitis B	97	(591)
Sex partner with hepatitis C	97	(585)
HIV	95	(582)
Transfusion before 1992	85	(493
Tattoos**	75	(445)
Alcoholism	69	(405)
Hemodialysis	69	(358)
Transfused after 1992**	47	(277)
Pregnant women**	40	(197)

Sample size: 634 respondents. Sample taken from the active members of the American Academy of Family Physicians.

* Multiple responses permitted.

** Not currently recommended by National Institutes of Health guidelines.

Table 3

Reasons Family Physicians Refer Patients With Hepatitis C to Specialists and Barriers to Referral

	%	(#)
Reasons for referrals*		
All patients with hepatitis C	74	(433)
To determine if therapy is indicated	66	(390)
For biopsy	55	(322)
If patient requests	54	(319)
For transplant consideration	50	(291)
End-stage liver disease	48	(282)
Abnormal liver enzymes	40	(233)
Other	3	(17)
Never refer	1	(6)
Barriers to referrals*		
None	50	(294)
Lack of insurance	33	(195)
Long waits to see specialist	22	(131)
Travel distance too far	14	(84)
Patient does not want to see specialist	14	(83)
Chemical dependency	11	(63)
Not covered by insurance	9	(52)
Other	6	(34)

Sample size: 634 respondents. Sample taken from the active members of the American Academy of Family Physicians.

* Multiple responses permitted.

acetaminophen (88%), to get tested for and vaccinated against hepatitis B (86%) and hepatitis A (68%), and to get tested for HIV (81%).

Referral. Seventy-four percent of respondents reported referring all hepatitis C patients for evaluation by a specialist. A wide range of reasons for referral were indicated, as listed in Table 3. Half of respondents reported experiencing some barriers, and 16% reported frequent barriers when referring hepatitis C patients to gastroenterologists or hepatologists. The most common barriers were insurance coverage, both lack of insurance and services not covered by insurance (41%), and long wait times to see a specialist (22%). Other barriers included long travel distances to specialists (14%), patients' preference not to see a specialist (14%), or chemical dependency that resulted in specialist discouraging or refusing referral (11%). The frequency of barriers differed by community type, with physicians in suburban communities least likely to report experiencing any barriers to referral, compared to urban and rural physicians (P=.001). Thirty-two respondents (5%) reported having given anti-viral hepatitis C drugs in their practice within the past year.

References Used. Fifty percent of respondents reported using one or more national guidelines in determining care strategies for hepatitis C patients. Guidelines used included the Centers for Disease Control and Prevention's (CDC) guideline (26%), the *Morbidity and Mortality Weekly Report's* (MMWR) guideline (24%), or the National Institutes of Health's (NIH) guideline (15%). A small proportion of individuals (8%) cited other references such as state or local guidelines or opinions from colleagues.

Knowledge

Risk Factors. Nearly all respondents indicated they offer blood testing for hepatitis C in patients with known risk factors (98%) that, as listed in Table 2, were identified as including elevated liver enzymes, history of intravenous drug use, hepatitis B infection,

sex partner with hepatitis C, HIV infection, and blood transfusion before 1992. A high percent also reported offering blood testing to patients with tattoos (75%), all pregnant women (40%), and patients with blood transfusions after 1992 (47%), even though the CDC does not recommend blood testing for any of these factors.[1]

Antiviral Efficacy and Side Effects. Almost half (46%) of all respondents thought that the current multi-drug regimens "cure" hepatitis C less than 50% of the time, while 21% thought the cure rate was 50% to 69%. Most respondents thought the side effects of drug therapy were bothersome (33%) or very bothersome (34%).

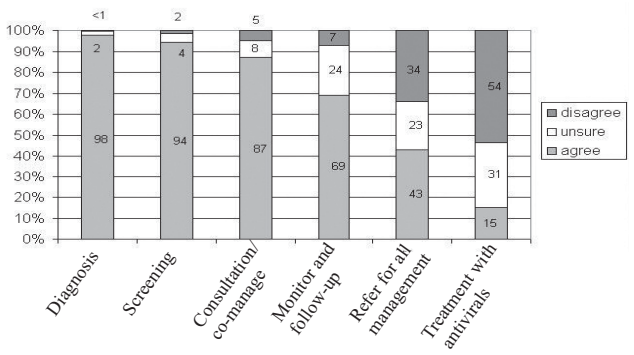
Beliefs and Attitudes

Importance and Confidence. Seventy-seven percent of respondents reported that hepatitis C is an important societal problem. Most respondents reported confidence in knowing when to refer hepatitis C patients (83%) and in their knowledge of risk factors for hepatitis C (83%). A majority of respondents were confident about the use of diagnostic tests (62%), while 36% felt confident about monitoring hepatitis C patients. A small group (6%) of respondents reported feeling confident treating hepatitis C patients with antiviral medications.

Role of Family Physicians. Respondents reported that family physicians should be involved in the screening (94%), diagnosis (98%), and general care (69%) of patients with hepatitis C using referrals to specialists for consultation and/or comanagement (87%). The role of family physicians in drug therapy for hepatitis C was less absolute. Fifteen percent thought family physicians should provide antiviral treatment, while 43% thought family physicians should refer all hepatitis C patients to specialists (Figure 1).

Figure 1

Family Physicians' Beliefs About Appropriate Roles of Family Physicians in Caring for Patients With Hepatitis C



Discussion

In this study, we found that 94% of family physicians care for patients with hepatitis C, more than 60% assess for risk factors for hepatitis C but rarely in a systematic way, and most test for hepatitis C when risk factors are identified. Most family physicians involve hepatitis specialists in the care of persons with hepatitis C, though the reasons for these referrals differ, and barriers frequently are encountered when seeking specialist help. Family physicians are confident about how to provide routine care to patients with hepatitis C and believe that care of these patients is within the scope of family medicine practice, although differences in opinion exist about what that role should be. Thus, family physicians know how to identify and provide basic care for people with hepatitis C.

However, family physicians may be underestimating the efficacy of antiviral therapy, which could affect their decision to recommend therapy.

Practice Patterns

This study is the most comprehensive summary to date of family physicians' beliefs and practices regarding the care of patients with hepatitis C. Prior surveys have included family physicians in surveys involving physicians in multiple specialties, but none have been restricted to family medicine.[9-11]

Compared to previous survey studies, family physicians appear to be seeing more patients with recognized hepatitis C. In 1999, Shehab[10] reported that 84% of primary care doctors saw fewer than five hepatitis C patients in the past year, compared to almost 70% of our current respondents, who reported they saw more than five patients with hepatitis C during the past year. Twenty percent saw more than 10 patients each year. However, the overall community prevalence of hepatitis C in the United States is 1.8%,[2] suggesting that the average family physician with 2,000 patients should have about 36 patients with hepatitis C in his/her practice. Thus, it is likely that the physicians who responded to our survey are unaware of many of the hepatitis C-infected patients in their practices.

One of the reasons family physicians may be missing some of these hepatitis C-infected patients is related to another finding of our study: few respondents (17%) report using a standardized history form to screen for hepatitis C risk factors. Rigorous studies of other medical conditions such as drug and alcohol abuse or risky sexual behaviors show that, despite good intentions, physicians seldom screen for these conditions unless they use a standardized screening tool.[12] Thus, it is likely that many patients at high risk for hepatitis C go undetected in family physician practices.

For those patients whose hepatitis C is recognized, most are referred for specialist evaluation.[11] However, many family physicians reported significant and frequent barriers to these referrals. The barriers included insurance issues that may be responsive to health policy changes. The wait time to see a specialist and distance barriers might be addressed by an increased level of training among community family physicians and internists who can assess and initiate treatment for hepatitis C, leaving complex cases and transplant candidates for referral. In addition, the wide diversity of alcohol-free periods that hepatologists require[13-15] before considering patients as candidates for therapy needs to be addressed and included in future guidelines for treatment.

Knowledge

Family physicians' skepticism and concern about the effectiveness and safety of antiviral hepatitis C therapy are likely major barriers to considering treatment of patients with hepatitis C. Almost half of respondents (45%) reported that the current multi-drug regimen cures hepatitis C less than 50% of the time. We did not explicitly define the meaning of "cure," so we do not know whether respondents interpreted our question as asking about the short- or long-term efficacy of antiviral therapy. If respondents are answering in terms of the known ability of antiviral regimens to reduce or eliminate viremia, respondents underestimated the true effect of treatment. Treatment with pegylated interferon plus ribaviran results in clearing of viremia in 54% to 56% of all patients treated at 6 months follow-up, regardless of viral type.[16-19] Conversely, the lack of long-term (10 to 20 year) clinical data for important patient-oriented outcomes such as cirrhosis and liver cancer prevention makes the respondents arguably correct to be skeptical about treatment.

In terms of other knowledge areas, although our findings show that family physicians generally provide good care for persons with hepatitis C, our survey results also highlight opportunities for improvement. For example, of the list of known risk factors, the lowest rate of testing was for patients who had received a blood transfusion before 1992, probably reflecting uncertainty about the year after which transfusions are no longer a risk. Additionally, a small number of respondents still report using liver function tests to screen for hepatitis C, and only 68% report counseling hepatitis C patients to get hepatitis A vaccinations. It is also important to note that only 50% of family physicians reported using national hepatitis C guidelines to help them care for patients with hepatitis C, suggesting that guidelines may not be the most effective way of improving the quality of the care provided.

Beliefs and Attitudes

The scope of practice of individual family physicians has always varied. In fact, the ability to adapt practice to the medical needs of a community is often cited as one of the strengths of family medicine. The variation from referring all care for hepatitis C to providing antiviral therapy within the family medicine office represents the two ends of the care spectrum, but the majority of respondents selected a middle approach: identification and monitoring by the primary care physician and assessment and treatment by the specialist. This strategy of having primary care clinicians identify a disease and refer to a specialist for management is used for many other chronic illnesses with self-limited interventions and is likely to be successful for hepatitis C also if referral resources are available and have few barriers. Given the barriers we face in getting our patients to specialists, it is important that we have the educational resources we need to provide good quality care to our patients.

Limitations

Our study has several limitations. In terms of internal validity, our data are self-reported, and differences in self-report versus actual practice have been noted in studies on accuracy of self-report.[20] Additionally, because responses were multiple choice, and we did not seek open-ended responses, we may have missed important information. For example, we did not ask about mental illness as a barrier to referral. We think, however, that our iterative process of survey construction captured most of the important issues in each of these areas.

In terms of generalizability, our results may not generalize to family physicians who are not active members of the AAFP or to other primary care physicians. Other studies that included both family medicine and general internal medicine have found few differences between these two groups of primary care physicians.[9-11] Our response rate of 53% is good for physician surveys, but the results may not reflect the practices and beliefs of nonrespondents. The most important reason for refusal to complete a survey is lack of interest in the subject.[21,22] Our survey responses may thus be a best-case scenario based on family physicians who are interested in and knowledgeable about hepatitis C rather than those who did not respond.

Conclusions

In summary, family physicians care for many patients with hepatitis C, but few systematically ask patients about hepatitis C risk factors. Therefore, it is likely that many high-risk patients remain unrecognized and undiagnosed. When hepatitis C is diagnosed, many family physicians experience barriers in referral to hepatitis C specialists. Solutions must address health insurance

policy limitations as well as making knowledge and skills for hepatitis evaluation and treatment more widely available among primary care physicians.

Further study is needed to accurately define the long-term patient-oriented benefits and costs of treatment of asymptomatic hepatitis C. We hope these findings will be helpful to family medicine educators who are designing interventions to address these educational needs.

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