

Patient Education Improves Patient Knowledge and Acceptance on Antiviral Therapy of Hepatitis C in Rural China

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It is estimated that 130–150 million people are chronically infected with hepatitis C virus (HCV) worldwide. During the late 1980s and early 1990s, illegal commercial plasma or blood donation practices were common in selected rural areas of China, which caused a rapid spread of HCV infection. Cross-sectional studies have showed that the prevalence rates of HCV infection in former paid plasma or blood donors varied from 9.6% to 72.8%. Chronic HCV infection can cause cirrhosis, liver failure, and hepatocellular carcinoma (HCC), and is a major global health problem. Eradicating HCV can prevent decompensation of cirrhosis, HCC, and death.^[1] The availability of direct-acting antiviral agents (DAAs) has significantly increased sustained virological response rates and decreased the complexity and adverse effects of HCV treatment. Much of the current debate on HCV treatment focuses on the high cost of these drugs, but even if the cost of HCV drugs is affordable, treatment would only benefit infected persons who have been diagnosed, have access to care, and wish to be treated. Despite the availability of effective treatments for HCV, globally no more than 15% of those infected are aware of their status and no more than 20% of those diagnosed have been treated.

To prospectively evaluate the impact of HCV education on patients' knowledge of HCV and acceptance of antiviral therapy of HCV in rural China, we conducted HCV education program in treatment-naïve patients who joined the Hebei Province Gu'an County Chronic Hepatitis C Program. A total of 151 HCV patients participated in the study including a lecture given by a doctor followed by an interactive discussion and completed both pre- and post-education questionnaires. Prior to the education session, the mean knowledge score was 13.1 ± 5.2 (total score: 28) and the mean percentage of

patients with correct answers to each question was 46.8%. Only 41% of the patients knew that there is antiviral therapy for hepatitis C before education. Among those who knew that there is treatment for hepatitis C, only 34% would accept antiviral treatment if recommended. After education, the mean knowledge score increased to 23.0 ± 4.2 ($P < 0.001$) and the mean percentage of patients with correct answers to each question increased to 82.1% ($P < 0.001$). The acceptance of antiviral therapy increased from 34% to 66%.

Knowledge about HCV is important for those infected, to lower the risk of transmission to others and to help patients make decisions about treatment. Prior studies have shown that HCV-infected persons have limited knowledge of HCV disease, especially in rural areas. A prior study of HCV patients by our group at Ann Arbor, Michigan, US; Beijing, Urban China; and Hebei, rural China showed that HCV knowledge was similar in patients in the US and urban China, while significantly lower among patients in rural China.^[2] Lower knowledge in patients in rural China may be a result of many factors including limited education, low health literacy, and lack of access to medical information. This highlights the necessity for a comprehensive HCV education program to reduce the gaps in HCV knowledge in rural China.

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Despite the low education level of patients and low baseline HCV knowledge, we showed that HCV knowledge can be significantly improved after education. There is no consensus on the most effective method to educate patients. To achieve the best outcome, educational interventions must be culturally sensitive and tailored to the education levels of the population. Large surveys consistently showed that patients considered medical providers to be their most trusted source of medical information. However, a survey showed that the awareness of hepatitis C among nonspecialist physicians was inadequate in China, especially in rural areas.^[3] Hence, the government needs to take measures to improve the HCV knowledge of physicians in rural areas first, such as holding regular training courses. Although education from health-care providers appears to be most effective, other sources of information can serve as supplements. Due to the low education levels, HCV patients in rural areas could fairly obtain HCV knowledge through their own reading or online resources. Educational pamphlets prepared in languages at the appropriate reading level or alternatives such as videos can help to overcome the literacy barriers. In addition, education should be tailored to patient's baseline knowledge of HCV. An assessment of education level and prior knowledge would provide valuable guidance for developing appropriate educational plans and for evaluating the effectiveness of the education.

The content of HCV education should at least cover topics on HCV transmission, natural history, HCV testing, and treatment progressions. Since the Chinese government implemented strict management on blood stations in 1995 and Blood Donation Law of China in 1998, the transmission through blood transfusion has gradually decreased. However, few patients in rural areas knew that sharing syringes or needles, unprotected sexual intercourse, tattooing, and sharing personal items such as razors could spread HCV. Deficiencies in these areas have important implications for the risk of transmission to others. Since HCV infection is asymptomatic in the initial period, it usually remains neglected for many years until complications have developed. Thus, disseminating the knowledge about the natural history of HCV infection to patients is important for them to make the decision to accept antiviral treatment. HCV testing mainly include testing for hepatitis C antibody, RNA, and genotype. HCV patients in rural areas usually know little about HCV genotype though the information can guide the type and duration of antiviral treatment. Patient knowledge deficiency in HCV genotype may be related to the high cost of the test and physicians may not have recommended the test knowing that treatment is not affordable by most patients. Daclatasvir and asunaprevir were recently approved and many other DAAs will soon be approved in China. Compared to prior standard treatment (pegylated interferon and ribavirin), DAAs have stronger antiviral effect and less adverse events. Helping patients understand hepatitis C can increase the uptake of antiviral treatment.

In general, patient-related barriers were viewed as the most significant barrier to HCV treatment, including low health literacy, limited access to medications and experienced providers, fear of side effects, medication expense, and low success rate of treatment.^[4] Patient education can improve patients' health literacy and improvement in the disease knowledge and acceptance of treatment, but the lack of trained specialists in rural areas may limit the effect of patient education. To properly address patient fears, physicians in rural areas must have a thorough understanding of antiviral therapy. Even after education, we still found a substantial proportion of patients in rural areas not willing to accept antiviral therapy. Medication expense remains a major barrier. Improving the management of HCV infection in rural areas needs not only efforts from patient and health-care provider but also efforts from the government. The cost of DAAs will make the treatment less accessible unless the Chinese health department can negotiate special pricing for the rural Chinese. The Chinese health-care system is evolving, and while the government covers partial cost of medical care, the reimbursement ratio is lower in rural areas than that in urban areas. Since 2003, the Chinese government has initiated free antiretroviral therapy programs for the HIV-infected rural plasma donors, but until recently, the free antiviral therapy programs for the HCV-infected rural plasma donors are not widely implemented.

In summary, HCV education substantially improved patient knowledge of HCV disease and acceptance of antiviral therapy in rural China. Selecting appropriate education methods and contents for patients in rural areas is especially important to increase the acceptance of antiviral therapy. The Chinese health department also needs to allocate sufficient funds to training physicians and to HCV diagnosis and treatment to improve HCV patient outcomes in rural areas.

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Conflicts of interest

There are no conflicts of interest.

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