

What barriers do primary care physicians face in the management of patients with chronic hepatitis B infection in primary care?

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ABSTRACT

Introduction: Asymptomatic chronic hepatitis B virus (HBV) carriers, followed-up in primary care, present a challenge to primary care physicians as they encounter problems in monitoring this group of patients. The study aims to explore the barriers faced by primary care physicians in the management of patients with chronic hepatitis B infection in primary care.

Methods: Qualitative analysis of eight focus group discussions with 43 primary care physicians in Singapore was conducted.

Results: Primary care physicians highlighted the HBV carriers' poor compliance to disease monitoring as a major hurdle, attributing to their lack of understanding of the disease, state of denial, fear of stigmatisation in society, failure to perceive benefits, costs and reluctance of investigations due to physical discomfort. The carriers' health-seeking behaviour, such as doctor hopping and the use of traditional medication, were other barriers. The investigators noted that the physicians placed emphasis on passive disease monitoring, focusing on the investigation results when they reviewed the carriers. They were less proactive in explaining the disease's natural history nor discussing the possibility of definitive anti-viral treatment for suitable carriers. These physicians varied in their approaches in disease monitoring of chronic HBV infection. The fees-for-service healthcare system allowed the carrier to seek consultation from different doctors, which could result in disruption of disease surveillance. This was further compounded by the differential cost of investigations in private practices and government-aided polyclinics. The absence of a national HBV registry and recall system and waiting time for referral to specialist clinics in restructured hospitals, were other barriers.

Conclusion: The management of HBV carriers in primary care could be enhanced by measures that

eliminate the barriers involving the patient, doctor and healthcare system.

Keywords: chronic hepatitis B infection, hepatitis, primary care physicians

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INTRODUCTION

It is estimated that 400 million people live with a chronic hepatitis B virus (HBV) infection worldwide, claiming over one million deaths per year due to progression of the chronic disease to cirrhosis and/or hepatocellular carcinoma (HCC)⁽¹⁾. Chronic HBV infection is also endemic in Singapore and affects 4-5% of the local multi-racial population who are carriers of the virus⁽²⁾. Due to a lapse of time between the onset of infection and the development of HBV-related liver complications^(3,4), these HBV carriers require regular monitoring of their liver status through medical examinations, and biochemical and imaging investigations. Reports^(5,6) indicated that early detection of these complications had a positive bearing on the morbidity and mortality of these HBV carriers, and hence the need for regular monitoring of the liver status. The Ministry of Health Clinical Practice Guidelines (MOH CPG), disseminated to all doctors in Singapore in March 2003, also recommended regular hepatocellular surveillance for patients with chronic HBV infection⁽⁷⁾.

These carriers also serve as potential viral reservoirs to infect susceptible individuals without HBV immunity. The national childhood HBV immunisation programme began only in 1985, and adult HBV immunisation is currently carried out on an ad-hoc basis. Thus, a significant proportion of the non-immunised Singapore population remained vulnerable to the infection. The fees-for-service healthcare system allows HBV carriers to seek medical reviews and have their investigations performed at various primary and secondary healthcare centres, such as private practices, government-aided polyclinics, and restructured

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or private hospitals. Although there is no epidemiological report of the proportion of HBV carriers being managed at the various health institutions, a significant percentage is estimated to seek consultation at primary care level due to cost and accessibility of services. Nonetheless, as most of these HBV carriers were asymptomatic, many primary care physicians noted that the former frequently defaulted their follow-up and thus, unknown numbers were not even being monitored at all.

This qualitative study aims to explore the primary care physicians' perceived barriers towards the management of chronic HBV infection at the primary care level. Understanding of these barriers would aid the primary healthcare professionals to address the problems and seek solutions to meet the needs of this group of patients.

METHODS

The study employed a qualitative method using focus group discussion (FGD)⁽⁸⁾ to seek information on the subject. A variety sample was constructed to include physicians of both genders, different ages and years of practice in both the public and private sectors in order to capture a wide spectrum of views. These physicians, who had treated HBV carriers in their practice, were invited to participate in the FGDs through introduction letters via post or e-mail.

The FGDs were carried out at four government-aided polyclinics, two general practice clinics and at the College of General Practitioners of Singapore, respectively, between January to July 2003. Both authors facilitated the FGDs based on a semi-structured discussion guideline. The guideline covered a whole range of topics related to physicians' management of chronic HBV infection. These include physicians' assessment of HBV carriers in terms of history, physical examination and investigations, problems encountered and ascertainment of their roles in the management of this chronic condition. The purpose and objectives of the study were reiterated to the participants at the commencement of the FGD and confidentiality of their identities was ensured. Each participant signed a consent form and was required to fill in basic socio-demographic data. Each focus group was audiotaped and lasted between 45 to 90 minutes. Detailed notes of each session were taken.

Data collection and analysis were iterative, i.e. data collection and analysis occurred in tandem. Data analysis was executed by collecting data and comparing them to emerging themes or categories

identified in the data and continued until the categories reached saturation, i.e. until no more information explaining a category could be found. This grounded theory approach provides an explicit and orderly guide for the collection and analysis of data and aims to discover or generate a theory or hypothesis that relates to a particular situation, which in this case, the management of chronic HBV infection in primary care^(10,11).

In this study, 43 primary care physicians were recruited. It was terminated with saturation of ideas after eight FGDs. Five private physicians declined participation in the study. The tape-recorded interviews were transcribed in its entirety into text files. The transcripts were read and checked independently by the researchers to ensure consistency coding. The data were coded using a qualitative data analysis software (NUD*IST Version 6.0TM)⁽⁹⁾ to explore potential themes based on grounded theory^(10,11). The quotes included in the results were typical views expressed by the participants and were used to exemplify emergent themes. Although there was an apparent under-representation of private physicians among the participants in the study, their views were accorded equal importance in the data analysis as no summation of views was carried out. The results represented consolidated views from both private and polyclinic physicians in this study.

RESULTS

The participants consisted of 43 primary care physicians with years of practice ranging from three to 36 years with mean duration of 11.3 years (SD 6.7 years). The private physicians either worked in grouped or single practices. 65.2% of the participants generally treated an average of 1-4 HBV carriers per month while the rest saw 5-9 carriers monthly (Table I). Factors influencing the management of chronic HBV infection were presented in themes from various perspectives, namely: factors related to patient, doctor and the primary healthcare system in Singapore (Table II).

Patient factors

Poor compliance with disease monitoring

The participants noted that the majority of HBV carriers on follow-up in general practice were physically well. 27.9% of the participants felt that these carriers were poorly compliant with their monitoring. They perceived that these carriers did not realise the relevance and importance of follow-up in view of the paucity of specific symptoms and were unaware of any long-term benefits.

In contrast, the carriers had to undergo the discomfort of venepuncture for their repeat blood investigations and to pay for it, which might have a negative impact in their health-seeking behaviour. One participant quoted an encounter with a mother who refused the blood sampling of her two children who were both HBV carriers due to her perception that the blood sampling was detrimental to health. Other participants highlighted that one of the reasons that contributed to the non-compliance in follow-up for the older HBV carriers was the phobia of blood sampling. In addition, the HBV carriers had to pay for the cost of the serial biochemical, serological and imaging investigations, which constituted another deterrent.

Understanding, "acceptance" and "denial" of the disease
88.4% of the participants felt that the carriers had poor understanding of their condition. They had the impression that the younger HBV carriers were more inclined to follow-up their condition due to better understanding of the disease and the need for regular monitoring to detect complications. In contrast, the participants perceived that the older HBV carriers tended to default follow-up due to gradual "acceptability" of the disease over the years, failure to perceive benefits in view of previous "normal" investigations. The participants also noted a certain degree of denial among the HBV carriers, especially those carriers whose diagnosis was recently confirmed.

Apathy

The participants noted that the carriers themselves seldom took the initiative to seek further clarification of their condition. The participants also gave examples of carriers who were not aware of their family members' HBV status though all would strongly encourage the carriers' family and relatives to undertake HBV screening.

Social stigmatisation

The public perception that the carrier is a "contagious individual" might prompt the HBV carrier to enter into a denial state, hide their status and default in their follow-up. In fact, a case of a woman who was ostracised by her spouse and family after discovery of her HBV status was brought up during one FGD. Another participant quoted an example of a foreign student who was likewise rejected by his hostel mates after his diagnosis was revealed. In a separate FGD, a participant brought up an example of a female HBV carrier who became depressed when she perceived erroneously from a public talk on HBV infection that her condition was fatal and comparable to AIDS. She subsequently defaulted follow-up.

Table I. Socio-demographic background and practice profile of participating primary care physicians.

Variable	Frequency n = 43	Percentage (%)
Number of years of practice		
<10 years	23	53.5
≥10 years	20	46.5
Gender of physicians		
Male	31	72.1
Female	12	27.9
Classification of practice		
Government	34	79.1
Private – solo	4	9.3
Private – group	5	11.6
Grades of polyclinic doctors (n=34)		
Residents/medical officers	13	38.2
Registrars	18	52.9
Consultants	3	8.8
Estimated number of HBV carriers consulted in private practice per month		
1 – 4	28	65.1
>4	15	34.9

Confusion between HBV and other liver-related viruses

The participants also highlighted the confusion among the carriers between the different viral aetiologies of hepatitis, most commonly between hepatitis A (HAV) and HBV. This led to inappropriate measures adopted by the carriers such as avoidance of shellfish, which necessitated more time and effort by their attending physician to rectify.

Help-seeking behaviour

According to the participants, the perceived absence of definitive treatment of their disease had eroded the confidence of many carriers on western medicine and prompted them to pursue traditional therapy as a cure of their condition, adding to the default rate. It created an impression that they were receiving curative treatment. This was aggravated by the strong local cultural belief of the "dangers of mixing" western and traditional treatment.

Discussion in one FGD also highlighted the misplaced priority of some of the carriers. One participant quoted an example of a carrier who would not hesitate to spend substantially on the treatment of his alopecia but less inclined to pay for the investigations of his chronic HBV disease.

Table II. Themes that emerged from the focus group discussions.

Factors	Themes
Patient	<p>Poor compliance with monitoring of disease:</p> <p>"... they say you cannot do anything, then frankly I (patient) don't want to follow up; I would rather die, you know." FGD 2</p> <p>"Non-compliance to the regular monitoring ...that's the worse" FGD 5</p> <p>Understanding and awareness of the disease:</p> <p>"I don't really know how effective (can) we publicly educate the patient about the seriousness of the condition. As a result of that, they don't feel anything and certain blood tests may be costly, these two actually decrease compliance." FGD 2</p> <p>"The greatest problem is the understanding of the disease." FGD 2</p> <p>"I think there is a lot of confusion between HBV and HAV. When we tell them about HBV, they are still confused." FGD 3</p> <p>"I find that most of the patient doesn't have much clue of the status in their family, ...they actually don't know." FGD 4</p> <p>"From my own experience, in most of the time, the patients are pretty resistant to doing all the investigations because in most time, they are quite well and asymptomatic; they do not see the need for any of these investigations. So this is the main challenge" FGD 5</p> <p>"In fact most of those I see, when we ask them to do it, they don't do the blood test; they don't bother to hear the information that they are HBV carriers." FGD 6</p> <p>Help-seeking behaviour:</p> <p>"I think for our community, we have been exposed to so many choices of alternative medicine...I don't really know what they are actually taking, ...which can actually be just health supplements, but in the mouth of the promoter it may look like a remedy medication. Some are followed up by Chinese physician, some by Bomoh ... I know I had seen a lot of things, so called liver detoxification agent." FGD 2</p> <p>"he doesn't want to accept the fact that he is a hepatitis B carrier so he seeks alternative Chinese medicine." FGD 2</p>
Doctor	<p>Passive attitude</p> <p>"... to discuss longevity and lifespan is a very sensitive issue; so if you bring them up the unnatural cause, they can get angry." FGD 1</p> <p>"they (patients) would ask what can I do about the hepatitis B, usually we tell them there is nothing much we can do." FGD 3</p> <p>"I think a large number of patients use some form of Chinese or traditional medicine. (The question) is whether they use it regularly or one-off situation. I think a lot of them (are) using it increasingly; but generally I don't actively ask them unless...you pick up abnormality, then you go back to the drug history again." FGD 7</p> <p>Emphasis on the execution and results of investigations:</p> <p>"When I see a case like that, I set priority, convince them to do the serological test, which is the high yield kind of activity. FGD 4</p> <p>"I focus on the results to see if they are normal." FGD 5</p> <p>"Usually right from the start I'll tell them you have to come back for blood investigations every 6 months, ultrasound every year." FGD 7</p> <p>Inconsistent approach:</p> <p>"... you talk about regime, even in the institutions, they don't have a consensus" FGD 2</p> <p>"The greatest problem is the understanding of the disease. There is a lot of confusion on the ground, even among doctors on how they should manage the HBV carriers." FGD 3</p>
Primary healthcare system	<p>Walk-in system:</p> <p>"...due to our time constraint, long queue, we can't spend much time with the patient." FGD 2</p> <p>"Some patients came in to confirm the HBV status. They were previously followed by private physicians but we do not have the records. We have to confirm whether they are carriers" FGD 4</p> <p>Cost of investigations:</p> <p>"Cost is an issue. For a lot of patients, when they realise that it is so expensive, they don't want to do it." FGD 1</p> <p>"We don't have subsidised blood test. Supposedly if I can offer them much cheaper (test), I can foresee the compliance will improve." FGD 6</p> <p>"Cost is the overriding factor...the six month (monitoring) is a strain especially (when) cost is an issue." FGD 7</p> <p>Primary-secondary care interface</p> <p>"The referral can be quite long." "The referral is difficult." FGD 1</p> <p>"One problem of the specialist is the long waiting time" FGD 6</p> <p>"Hepatitis B carriers who are being followed up at the hospital, the moment they are discharged as a step down measure, they feel that they are perfectly well, they don't need any follow up." FGD 7</p> <p>Lack of patient recall system and registry</p> <p>"Unfortunately we do not have a patient recall system. So most of the time, they forget ...is very haphazard." FGD 6</p> <p>"We actually set up a HBV register. ... we actively refer to the nurse practitioner to make a note that they had attended and to make projection when they are supposed to come back. If they lapse we actively recall them. We have devised a chart... to fill in some important key history and physical examination. Sometimes, of course, is not easy. Some of the doctors in the rush did cut corners but I think one of the important things is that we have a checklist for the doctor to follow and also by referring to the nurse practitioner; they can help to reinforce." FGD 7</p> <p>"I think for those who come they are probably the selected group. The problem is looking at the bigger picture...we don't know who did not come. Unless there is a registry, we can't do much." FGD 7</p>

Doctor factors

Passive attitude

The participants did not actively seek out the HBV carriers from their cohort of patients and attributed it to heavy workload and short consultation time. For the same reason, some of the participants also admitted to being less proactive in determining the regularity of follow-up of HBV carriers unless the disease was prominently displayed in the patients' case folders. The participants also indicated reluctance to discuss the disease if the consultation was for other reasons, as it might result in inappropriate perception from the patients. The participants also indicated that though they were aware of the use of traditional treatment and their associated potential hazards, they did not routinely pursue its use by the carriers unless there were red flags. Many participants were not acquainted with the content of the herbal or traditional medication; they were also skeptical of the effectiveness of such therapies.

Distraction by co-morbidity, biochemical and imaging results

For HBV carriers with multiple chronic ailments, the participants appeared to pay more attention to their co-morbidities. In addition, many physicians were preoccupied with the blood investigations and imaging reports, as there was greater reliance on these parameters compared to lower priority accorded to history and physical examination. The participants showed less initiative towards addressing the patients' concerns and expectations. Few participants stressed the detection of active viral replication and liver damage, as reflected by raised liver transaminases as an indicator for the initiation of definitive anti-viral therapy, rather than mere passive monitoring. This might easily create the impression that the physicians were not performing any active treatment of their patients' condition.

Inconsistent approach

The authors noted a lack of uniformity in the participants' approach to educating themselves and monitoring of the biochemical parameters and liver imaging. There was a lack of consensus between the participants as to the frequency and types of biochemical and serological investigations. This stemmed from the variable levels of knowledge and sources of information and references of the participants. The last three FGDs were carried out after the launch of the MOH clinical practice guidelines on the management of chronic HBV infection. Only a single participant mentioned the CPG recommendations in these discussions.

Primary healthcare system

Walk-in system

The walk-in system for the primary healthcare sector in Singapore allowed the patients to consult any doctor of their choice in any locality. This could disrupt the continuity of care of chronic disease like HBV infection as carriers could easily doctor-hop. It hindered the attending physician from proper assessment of the condition as it interrupted serial measurements of biochemical and liver tumor markers and liver imaging, which constituted key parameters to detect potential liver complications. Unnecessary repeat tests might be introduced.

Cost of investigations

This was further aggravated by the disparity of cost of blood investigations in private practices compared to subsidised rates in the polyclinics. The cost of liver ultrasonography, which was the most common imaging investigation used by the participants, was comparable in the two healthcare sectors. The absence of a common database to share information for HBV carriers in both the private and public healthcare sectors was another prohibiting factor.

Lack of recall system

The absence of a national HBV disease registry does not enable monitoring of the HBV carriers' compliance to disease surveillance. Both the private and public healthcare centres, with the exception of a few polyclinics, generally lacked a recall system to remind carriers of their review appointments. Primary care physicians from selected polyclinics indicated that they relied on the clinic staff's initiative to recall the patients. Documentation of the condition and the various reminder measures (too) varied between different practices and polyclinics. The participants also reckoned that the six-monthly investigations were far too long for the carriers to remember and a patient recall system would facilitate regular follow-up.

Absence of local epidemiological data

One participant highlighted the lack of epidemiological data of these HBV carriers for the entire country and perceived that there were still asymptomatic HBV carriers that were not under any surveillance in the community. They constituted the HBV reservoir and the potential source of infection for the susceptible citizens. This would be the group of HBV carriers that needed to be educated to arrest the spread of the disease.

Primary-secondary healthcare interface

Referral of HBV carriers to specialist clinics was another contentious issue. Several participants cited the long waiting time for referral to secondary care as a barrier especially for carriers with detected complications, but other participants shared information and offered options to expedite the referral during the focus group discussions.

DISCUSSION

It is generally accepted that random anti-viral treatment for chronic HBV infection is often not cost-effective in viral eradication. Reports^(12,13) indicated that HBV carriers undergoing seroconversion would be suitable candidates for the commencement of anti-viral therapy. However, HBV carriers' failure to understand the key elements of the management of the disease appeared to be the root problem, which led to poor compliance with follow-up. Primary care physicians need to realise that relating the biochemical and serological parameters and imaging reports to HBV carriers, especially when the results are normal, merely conveys a superficial sense of well-being. The low priority accorded to clinical examination of the carriers during the consultation further expounded the lack of essence for follow-up.

The authors felt that such practice was inadequate to ensure that the carriers return regularly to their practice for review. Physicians need to impress upon the carriers that early detection of increased liver damage from active viral replications as a criterion for the commencement of anti-viral therapy should form the basis of the follow-up^(12,13). It should be impressed upon the carriers that the objective of the follow-up would be to look for suitable timing for the definitive intervention of their condition. As one participant pointed out, undertaking this task during the first consultation was crucial, which would also help to clarify the doubts and erroneous perceptions of the disease. This may be repeated in subsequent consultations to retard complacency in view of the well-being of most carriers. The authors felt that time invested to educate the carriers on the disease would be worthwhile and effective to improve compliance in the long term.

The MOH HBV CPG, introduced to local doctors in the midst of this study, was little mentioned during the discussions. It would be premature for this study to determine the impact of the CPG on the primary care physicians' practice in managing HBV carriers. However, the CPG would be a favorable platform for primary care physicians to standardise their practice based on current best clinical evidence.

Primary care physicians must also play their part by reminding their carrier patients to undertake the relevant investigations. A reminder system as proposed by participants in several FGDs would be helpful to recall carriers who defaulted. Various suggestions were put forward by the participants, ranging from simple measures, such as documentation of the diagnosis on the case notes or folders, ink stamps, colour-coded stickers, HBV specific forms to record the investigations, to IT-based automated recall systems. These measures could be implemented in both the small singleton private practices to the larger scale polyclinics. The critical step is to recognise the usefulness and relevance of the recall system and to implement it in a way that best suited the clinic operation.

Cost of follow-up to the carriers is another barrier. Although it will be a mammoth task to revamp the fees-for-service primary healthcare system, the disparity of cost of investigations could be minimised with the health authority extending the subvention to private practice. This could be channeled from the savings by devolving the care of physically well HBV carriers from the more costly specialist clinics in hospitals to the primary care institutions and private practices. Ensuring a seamless interface between primary and secondary healthcare system is catalytic of continuity of care. This can be further enhanced by public education to discourage doctor hopping, which is beneficial in the management of any chronic disease, including HBV infection.

In view of the prevalence of HBV virus in Singapore and the ASEAN region, setting up a national registry can be a worthwhile endeavor to identify the HBV carriers. It will allow contact tracing for newly-diagnosed carriers and allows an efficient recall system to monitor their status. Coupled with preventive measures such as nation-wide HBV immunisation, HBV infection can potentially be eradicated from the community. The qualitative analysis aimed to provide an insight into the management of chronic HBV infection among the primary care physicians in this study, but this research method would not be able to extrapolate the findings to all the primary care physicians in Singapore.

In conclusion, primary care physicians must recognise the barriers in the management of HBV carriers in primary care. They should be proactive and invest time in clarifying with the HBV carriers the issues pertaining to the need for monitoring of their liver status. A recall system should be implemented to remind the physicians to monitor the HBV carriers. Ultimately, it is the HBV carriers' true understanding of their condition, which

motivates them in their follow-up, and the physicians play a crucial role to fulfill this task.

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