

Shifting Care Models in Hepatitis B

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Abstract

Hepatitis B is an infectious disease caused by the Hepatitis B Virus (HBV) that affects the liver. The virus is transmitted by exposure to infectious blood or body fluids. Given the chronic nature of HBV infection and changes that can occur, lifelong monitoring for complications, such as development of cirrhosis or hepatocellular carcinoma even in the absence of cirrhosis, or viral reactivation requiring commencement of antiviral suppression.

Keywords: Hepatitis; Immunosuppression; Hepatocellular carcinoma; Antiviral therapy

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Introduction

In Australia, there are approximately 226,566 people living with chronic Hepatitis B Virus (HBV), with an estimate of only 68.1% diagnose, 22.1% engaging in care and 9.3% receiving antiviral treatment in 2018 [1].

Given the chronic nature of HBV infection and changes that can occur, lifelong monitoring for complications, such as development of cirrhosis or hepatocellular carcinoma even in the absence of cirrhosis, or viral reactivation requiring commencement of antiviral suppression.

Koh, et al., identified in their study of 115 patients being treated with antiviral suppression within a tertiary setting, that 75.7% (n=87) had no change in their management for the length of follow up suggesting a large proportion of patients not requiring monitoring through a tertiary hospital outpatient setting. They also reported that, in patients who were adherent to antiviral suppression therapy, their management could be transitioned to a primary care setting with remote support from specialists, thus reducing hospital resources. This is particularly relevant in light of the nature of viral hepatitis as a chronic disease, and decreased capacity of clinics and issues with patients accessing specialist clinics. The annual cost of these patients with stable disease undergoing specialist care was estimated to be \$60,166 AUD per tertiary centre [2].

Koh, et al., also reported that necessary change in management were predictable based on several biochemical or radiological markers including routine monitoring of liver tests, changes in HBV viral load and alanine transferase levels and liver ultrasound with development of hepatoma, even prior to a face to face consultation. Factors which were associated with change in management requiring specialist input not predicted by aforementioned factors include non-English speaking background and patients undergoing immunosuppression [2].

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Guidelines for managing stable, chronic hepatitis B are widely available through various groups of American Associated of the Study of Liver Diseases (AASLD) and European Association of the Study of the Liver (EASL), and the Australian Liver Association (ALA) locally. These guidelines not only cover recommendations for HBV screening but also commencement of antiviral therapy and recommendations for follow up of disease control and hepatocellular carcinoma surveillance with six monthly ultrasounds.

The development of vaccines and antiviral therapy has led to a significant improvement in decreased transmission and improved patient outcomes; however the chronic nature of HBV infection requiring follow due to impact on morbidity and mortality remains an ongoing issue.

Patients with chronic HBV have traditionally been followed up by tertiary centre clinics led by hepatologists and infectious disease specialists, however this study by Koh, et al., signaled the potential shift in management and follow up of stable, chronic hepatitis B patients.

Australian data has shown that the landscape of hepatitis B management is shifting, particularly with prescribing practices, indicating the changing behavior among primary care physicians to take up a role in leading chronic HBV follow up in stable patients [1]. Kohl et al., proposed that primary care physicians should be following up stable, adherent chronic hepatitis B patients, supported by specialist physicians, with appropriate referral to specialist clinics in event of a disease modifying flags: Liver test

change, HBV viral load increase, liver lesion identification and commencement of other medications that increase the risk of reactivation.

These suggestions highlight the need for developing and implementing supportive integrated, shared care models of practice to decrease the burgeoning burden on hospital systems with primary care physicians following up the bulk of stable, chronic HBV patients, to allow tertiary clinics to manage more specialized patients, but also supporting community primary care physicians with good lines of communication.

Worldwide Issue

Internationally, the AASLD also recognise the importance of primary care physicians with managing at the outset with screening for HBV, as well as with prevention of transmission with vaccination, treatment provision and subsequent HCC surveillance to improve and overcome logistical barriers and improve continuity of care [3].

Mukhtar, et al., looked at rates of HBV screening, management and HCC surveillance in patients with chronic HBV amongst primary care physicians in San Francisco, California. They noted primary care physicians practicing in the safety net health care system was positively associated with HBV screening, possibly related to high proportion of at-risk immigrants in the Bay Area of San Francisco, but negatively associated with HCC surveillance. In same group of primary care physician, a third of providers were unaware of reduced risk of liver disease progression with antiviral therapy. They also observed a significant unfamiliarity of treatment guidelines, suggesting a lack of understanding with HBV and relationship to HCC development even in the absence of cirrhosis. This study highlighted that further education of primary care physicians will be needed prior to their role becoming more prominent in hepatitis B management [4].

This highlights that, while this shift in care would be appealing for multiple reasons, it is evident that education and infrastructure needs to be developed in order for primary care physician colleagues to be able to support a shift in care models particular in Australia.

Australian Snapshot

Unique challenges to healthcare provision lie in Australia's low population densities, vast stretches of uninhabited land and spread out coastal urban centres. The Australian Institute of Health and Welfare (AIHW) has reported that Australians life expectancy reduces with increasing remoteness with poorer rates of screening and increased hospitalisation in remoted compared to major cities [5]. A large proportion of patients, including indigenous patients, live in rural and remote communities, often out of reach of specialist care. The development of specialist outreach services has been implemented to overcome this barrier due to language and cultural differences, and cost of seeking care. This disparity impacts on inequity between indigenous and non-indigenous Australians not only in terms of specialist care, but also subsequent vaccination coverage [6].

Within Australia, HBV is associated with 30% of hepatocellular carcinoma cases. Data from mandatory reporting of newly acquired cases has decreased from 1.2 per 100,000 individuals in 2009 to 0.7 per 100,000 in 2013. Contributing factors have been attributed to the national immunisation program commencing in year 2000 including the adolescent catch-up programmes since 2017. Despite this decrease of case acquisition, an increase of related hepatocellular carcinoma rates has increased from 450 cases in 2008 to 1550 in 2017 [7].

Estimates were that only 68% of patients with chronic hepatitis B had been diagnosed, leading to the implementation of the National Hepatitis B strategy 2010-2013 that sought to increase the proportion of patients diagnosed to at least 80%, and reduce transmission rates as well as associated morbidity and mortality.

Successes of the Second National Hepatitis B strategy 2014-2017 include continued high rates of vaccine program implementation targeting all children, and continued decline of hepatitis B infections in Australia's indigenous people, who account for 11% of the Australian population infected. Prescribing allowances for primary care physician for hepatitis B treatment was also implemented. This is important as this was previously seen as a barrier to primary care physician management of hepatitis B. Antiviral treatments of entecavir and tenofovir were introduced in the early 2000s and by 2017, 7% of patients with chronic hepatitis B had been prescribed treatment as per guidelines, however this fell short of the targeted 15% aim. Primary care physician prescribing of treatment increased from 10.1% to 17.9%, with an associated decrease in specialist prescribing from 67.2% to 76.3%.

Ongoing priorities as part of the current Third National Hepatitis strategy 2018-2022 include an emphasis on knowledge, health literacy and awareness in order to support patient engagement, vaccination, treatment and coordinate care [7,8]. To achieve 95% vaccination coverage in infants, increase diagnosis of chronic hepatitis B to 80%, increase proportion of patients receiving care to 50%, patients receiving antiviral treatment to 20% and reduce mortality related to chronic hepatitis B by 30% [8].

Within Australia, the low population density with tertiary centres in an urban setting raises the need for options to manage patients in remote and rural settings. While a national outreach policy includes subsidies for outreach medical services, waiting lists and clinic wait times are often impractical. Progress has already been made in increasing primary care physicians in managing stable chronic HBV patients [6]. This integrated, shared care model has shown to be successful with the DAA HCV treatments and their uptake by primary care physicians has been significant.

Wallace, et al., qualitative study looking at primary care physician opinions of hepatitis B management found that a shared care model was favourable, acknowledging the resource limitations of specialist-centres models of care to allow for more complex and urgent cases to be seen in a timely manner with less acute follow up of stable disease shifted to a primary [9].

Barriers

Wallace, et al., also found on interviews conducted with primary care physicians evaluating their perceived role in the management of hepatitis B. They did see themselves as essential in managing chronic hepatitis B as their role lends them to frequent reviews, and easier access of primary care fosters a continuing therapeutic relationship. The primary care physicians involved with this study were indeed open to shared care arrangements for commencing and continuing pharmaceutical treatments [9].

However, barriers including primary care physician uptake of screening for hepatitis B, et al., one management of, remain. A study conducted by Richmond, et al., determined that improving testing behaviours to ensure correct tests are performed reduces the need for repeated blood tests and allows for more immediate, as well as ongoing, management. A systematic and coordinated approach is required in order to ensure that primary care physicians feel they are supported to discuss and hepatitis B management, such as with the most recent experiences with hepatitis C. Unfortunately, primary care physicians feel that hepatitis B may not fall within their clinical priorities and discomfort arises with broaching hepatitis B screening as they do not want to be seen as racially profiling, particularly as the majority of patients at high risk of infection have immigrated from African and Asian countries [10].

The importance of HBV screening and management should be incorporated into primary care physician training, and this has already occurred with the latest local Royal Australasian College of General Practitioner's (RACGP) curriculum with regards to screening, serology interpretation as well as specialised prescribing for hepatitis B, as has previously been done with other infections, for example HIV and TB [11].

Education programs with seminars proved to be effective with HCV management, and could suffice to bridge and have also been available through the RACGP program. Local guidelines from specialist groups, such as ALA are also available as supplementary resources of specialists as well as primary care physicians.

The ongoing challenges of the recent COVID-19 pandemic have also brought forward the development and implementation of more mobile forms of patient follow up in the form of telehealth and virtual clinics, which would prove useful in order to support this shift in care model [12].

Conclusion

Select patients with chronic hepatitis B, known to be adherent to their antiviral medications may be suitable for shared care to allow continuity of care with their primary care physician. This will decrease both the clinical and financial burden placed upon tertiary care facilities. It is important however, that primary care physicians be able to have open communication with specialists

regarding their patients and also know when to refer for specialist care, such as liver test abnormalities and development of hepatocellular carcinoma. While strides towards this change have been evident that further education or and increased uptake of screening, prescribing of antiviral medications and involvement of primary care physician colleagues will be required for systemic change to occur.

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