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Pregnancy – a key moment for engaging women with hepatitis B in care

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In 2017, only 17% of Australians living with hepatitis B received appropriate monitoring, and half of those who required hepatitis B treatment received it.[1] Using current projections, Australia will not reach the 2030 World Health Organization (WHO) goal of a 65% reduction in hepatitis B mortality until 2051 – a delay of 21 years.[2,3] Key to achieving the WHO target is linkage to hepatitis B care.

In 2013, a Victorian study demonstrated suboptimal management of hepatitis B in pregnancy.[4] A review at our institution found similar results, prompting the development of a collaborative referral pathway.[5] A working party from obstetrics, gastroenterology and infectious diseases departments agreed to the following intervention for women with hepatitis B: antenatal medical review, if hepatitis B virus (HBV) viral load >200,000 IU/ml care through the high-risk obstetrician-led antenatal service, referral to Liver Clinic, and education at the high-risk antenatal clinic from hepatology nurses. A Liver Clinic referral pack, containing hepatitis B patient information, pre-printed pathology slips and a referral proforma, was provided in the antenatal clinic. In 2013, the Royal Australian and New Zealand College of Obstetricians and Gynaecologists (RANZCOG) also recommended antenatal HBV viral load testing.[6] The aim of this study was to compare hepatitis B management in pregnancy and engagement in care post-partum, pre- and post-implementation of a collaborative referral pathway at University Hospital Geelong (UHG), a regional, tertiary maternity hospital in Victoria.

Pregnant women receiving care at UHG with hepatitis B (surface antigen detected) were identified via antenatal screening results or delivery records. The pre-intervention group received pregnancy care from 2008 to 2013; the post-intervention group from 2014 to 2018. The following data were collected to assess hepatitis B management during pregnancy: referral to and attendance at Liver Clinic; completion of liver function tests; HBV e antigen (eAg); HBV viral load; indication for and exposure to antiviral therapy and neonate birth dose HBV vaccine and immunoglobulin. HBV replicative status was assessed according to the contemporary RANZCOG guidelines for each group: eAg or HBV viral load pre-intervention, and HBV viral load post-intervention. Antenatal antiviral therapy was indicated at HBV viral load >200,000 IU/ml. Engagement in care post-partum was defined as attendance at Liver Clinic appointments at least annually. Pearson's chi-squared or Fisher's exact tests were used as appropriate. Analysis was undertaken using STATA/MP 16.1 (StataCorp LLC, Tx, USA). This study was approved by the Barwon Health Research Ethics Committee (19/11).

Twenty-nine women had 35 pregnancies resulting in 34 live births pre-intervention; 31 women had 36 pregnancies all resulting in live births post-intervention. The median age at delivery was 30 years (interquartile range [IQR] 25–34) pre-intervention and 30.5 years (IQR 26–32) post-intervention. The proportion of women born overseas was 19/29 (66%) pre-intervention and 28/31 (90%) post-intervention. Data and analysis for hepatitis B management during pregnancy is presented in Table 1. HBV viral load testing was performed more frequently post-intervention 33/36 (91%) compared to pre-intervention 11/35 (31%; $p<0.001$).

Pre-intervention, four of 29 women (14%) attended Liver Clinic annually post-partum: one remains engaged seven years post-partum, one attended for five years and then moved out of the area, one attended for two years and then became lost to follow-up, and one attended for two years and was discharged from the clinic. Post-intervention, 21 of 31 women (68%) attended Liver Clinic annually post-partum: 16 remain engaged in care (median duration 4 years, range 2–7), three are lost to follow-up and two moved out of the area. Women in the post-intervention group were significantly more likely to be engaged in Liver Clinic care post-partum (16/31 [52%] vs. 1/29 [3%], $p<0.001$).

A collaborative referral pathway has improved care for pregnant women with hepatitis B at our health service and successfully linked more than half to ongoing hepatitis B care. Previous Australian studies have assessed hepatitis B management in pregnancy and infant immunoprophylaxis, but to our knowledge, none have addressed the role antenatal care could play in linking women to ongoing hepatitis B care.[7,8] Most women in the study were born overseas and therefore face additional language, social and economic barriers to healthcare. Addressing these barriers by creating novel pathways to care is a step towards health service equity for this important patient group.

Table 1: Hepatitis B management during pregnancy.

Variable	Pre-intervention n (%) N = 35	Post-intervention n (%) N = 36	Pearson's chi squared
Referred to Liver Clinic	13 (37%)	33 (92%)	$p<0.001$
Attended Liver Clinic if referred	8/13 (62%)	31/33 (94%)	$p=0.006$
LFT performed	29 (83%)	34 (94%)	$p=0.081$
HBV e Ag performed	27 (77%)	30 (83%)	$p=0.512$
HBV e Ag detected if test performed	2/27 (7%)	6/30 (20%)	N/A
HBV viral load performed	11 (31%)	33 (91%)	$p<0.001$
HBV replicative status assessed per current guidelines	28 (80%)	33 (92%)	$p=0.158$
HBV VL >200,000 IU/ml if test performed	1/11 (9%)	6/33 (18%)	N/A
Antiviral treatment taken if indicated	1/1 (100%)	5/6 (83%)	N/A
Number of live births	34 (97%)	36 (100%)	N/A
Birth dose HBV vaccine administered if live birth	33/34 (97%)	36 (100%)	$p=0.300$
HBIg administered if live birth	32/34 (94%)	36 (100%)	$p=0.336$

Notes:
LFT liver function tests; HBV hepatitis B virus; Ag antigen; VL viral load; HBIg HBV human immunoglobulin

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Of note, this study did not capture data of women who may have sought hepatitis B care privately, at other institutions or with their general practitioner. The serologic status of infants born to women with hepatitis B was not assessed in this study.

The introduction of a collaborative referral pathway for pregnant women with hepatitis B significantly improved the assessment of viral load during pregnancy and provided an opportunity to link women into ongoing care. The optimisation of hepatitis B prevention, monitoring and treatment is required to achieve the WHO elimination targets by 2030.

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