

# Evaluating the relationship between hepatitis B viral activity and gestational diabetes mellitus: a prospective cohort study

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**Background:** Chronic hepatitis B virus infection (CHB) during pregnancy has been associated with the development of gestational diabetes mellitus (GDM), particularly in women of South East Asian (SEA) ethnicity, who have a higher prevalence of both conditions. The underlying mechanism is not well characterised, but may be due to the chronic inflammatory state associated with CHB. In this study we examine the associations between hepatitis B viral activity and GDM in pregnant people with CHB.

**Methods:** Prospective cohort of pregnant adults with CHB at three tertiary maternity centres in Melbourne, Australia, between May 2021 and April 2023. Demographics and markers of viral activity (liver function tests, HBV viral load, hepatitis B e antigen, and quantitative hepatitis B surface antigen (quantHBsAg)) were compared between those with and without GDM. Antivirals were prescribed in accordance with recommended clinical guidelines. Logistic regression analysis was performed pre- and post-adjustment for known confounders (maternal age, body mass index, country of birth, past history of GDM).

**Results:** We recruited 113 people with CHB, 58% (66/113) of whom were born in SEA. One third (38/113, 34%) developed GDM, three quarters of whom were born in SEA (29/38, 76%). There was no difference in antiviral use between groups. Mean quantHBsAg was significantly lower in those with GDM (1948 IU/ml vs 4449 IU/mL,  $p=0.04$ ). No other associations were identified between GDM and markers of hepatic activity on multivariate logistic regression analysis.

**Conclusion:** Participants with CHB were diagnosed with GDM at almost twice the rate of women undergoing antenatal care in Australia. QuantHBsAg may be a useful surrogate marker to predict GDM, to allow earlier diagnosis, education and monitoring but requires further studies in other settings to confirm our findings.

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