

False positive HBsAg resulting from routine HBV vaccination prior to initiating HIV pre-exposure prophylaxis

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Background

- Pre-exposure prophylaxis (PrEP) is an effective strategy for HIV prevention
- Hepatitis B virus (HBV) serostatus must be known prior to PrEP initiation as PrEP medications have activity against HBV
- HBV vaccination is recommended for susceptible individuals
- HBV surface antigen (HBsAg) can be detected shortly after vaccination leading to misdiagnosis of acute or chronic HBV
- Two cases of vaccine induced HBsAg detection following routine evaluation for PrEP and HBV vaccination are presented herein

Case 1

- 34 year old male, referred for PrEP
- No prior HBV vaccination, first vaccine dose given after initial PrEP evaluation
- Baseline bloodwork 5 days later revealed positive HBsAg suggesting acute or chronic HBV infection (Table 1)
- Repeat bloodwork revealed HBV vaccine induced seroconversion, with negative HBsAg (Table 1)
- PrEP was initiated following specialist consultation after 10 months as the patient was initially lost to follow up for several months

Table 1

HBV serologies for Case 1

Days after vaccine	HBsAg	Anti-HBs Ab (IU/mL)	Anti-HBc Ab	HBeAg	HBV DNA (IU/mL)
Day 5	Positive	< 2.0	Non-reactive	-	-
Day 34	Non-reactive	-	-	Non-reactive	< 20
Day 322	Non-reactive	> 1000	Non-reactive	-	-

Case 2

- 54 year old male, referred for PrEP
- No prior HBV vaccination, first vaccine dose given after initial PrEP evaluation
- Baseline bloodwork 3 days later revealed positive HBsAg suggesting acute or chronic HBV infection (Table 2)
- 10 days later, repeat bloodwork revealed HBV vaccine induced seroconversion, with negative HBsAg (Table 2)
- PrEP was initiated following specialist consultation, but delayed 24 days

Table 2

HBV serologies for Case 2

Days after vaccine	HBsAg	Anti-HBs Ab (IU/mL)	Anti-HBc Ab
Day 3	Positive (1.42; 2.09)*	< 3.1	Non-reactive
Day 13	Non-reactive	82	Non-reactive

*Signal strength, run in duplicate

Discussion

- Low level HBsAg can be detected for 2-3 weeks following HBV vaccination
- HBV markers measured within this window can mimic acute or chronic HBV
- Implications include:
 - Misdiagnosis of HBV
 - Unnecessary patient distress
 - Additional laboratory testing
 - Specialist referral
 - Delayed, deferred, or missed opportunity to start PrEP

Conclusions

- PrEP prescribers should be aware that vaccine induced HBsAg can be detected 2-3 weeks after HBV vaccination
- PrEP clinics require structured work flow to ensure HBV serostatus is measured prior to HBV vaccination to reduce false clinical diagnoses of acute or chronic HBV



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