The importance of hepatitis B prevention intervention during HIV PEP visits and the inefficacy of hepatitis B immune globulin

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Introduction

- Hepatitis B (HBV) disproportionately affects people at risk of HIV and active vaccination is the standard of care for prevention.
- While Hepatitis B immune globulin (HBIG) is an effective tool for HBV PEP, its usefulness in people seeking HIV PEP is unclear.
- We quantified susceptibility to HBV among HIV post-exposure prophylaxis (PEP) seekers at St. Michael's hospital, Toronto, and estimated the number needed to prevent (NNP) HBV in this setting using HBIG.

Takeaway 1

HIV PEP visits are important opportunities for hepatitis B prevention interventions

Takeaway 2

HBIG should not be routinely administered to patients seeking HIV PEP if source patient HBV status is unknown

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(1) HBV Prevalence & Immunity

Methods

- *Ongoing* retrospective chart review
- St. Michael's Hospital, Toronto, ON
- Cohort: patients requesting PEP
- Time frame: 2001-2020
- Classified patients as HBV infected, immune, or susceptible, stratified by exposure type (sexual vs. parenteral)

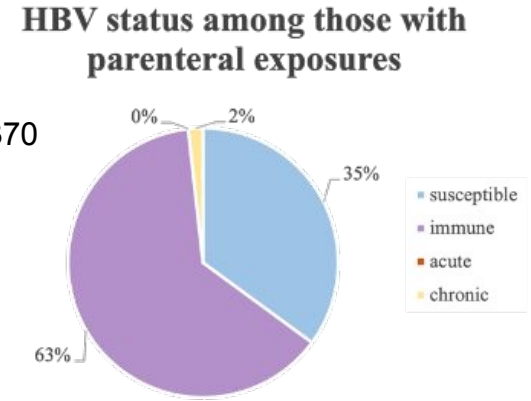
HBV infection: self-report of chronic HBV or reactive HBsAg, and HBV susceptibility as HBsAb<10IU/mL (plus non-reactive HBcAb, if available)
HBV susceptible: HBsAb <10mIU/mL
HBV active PEP regimens: regimens containing tenofovir/emtricitabine

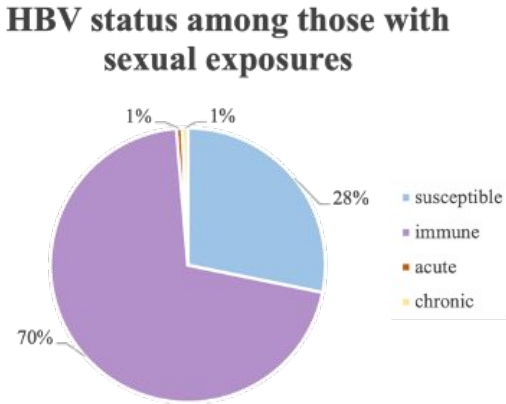
Results

- N˚ of HIV PEP episodes reviewed to date: 370
  - Sexual exposures: 298 (83.9%)
  - Parenteral exposures: 57 (16.1%)
- N˚ of unique patients reviewed: 277
- Mean age: 34.5 (SD=10.8)
- Men who have sex with men (MSM): 74.6%
- 95.7% PEP regimens were HBV-active

Among susceptible patients (n=109):

- 39 (35.8%) received HBV vaccine
- 16 (14.7%) received HBIG
- No source patient was known to be HBV-positive





HBcAb=Hepatitis B core antibody; HBsAb=Hepatitis B surface antibody; HBsAg=Hepatitis B surface antigen; HBIG=hepatitis B immune globulin; HBV=hepatitis B virus

(2) HBIG NNP Calculations

Methods

Calculations were accomplished with the published estimates presented in *Table 1*.

Table 1. Summary of values used for NNP calculations

Description	Estimated Value (measure)	Error range	Source
Baseline *active* HBV prevalence among MSM	1.79 (%)	[1.5, 2.08]	Pitasi *et al.* (2014) Remis *et al.* (2016)
Risk of transmission per-sex act of MSM	0.00973	[0, 0.0191]	Lu *et al.* (2021)
HBV vaccine efficacy	67.3%	[0.65, 0.69]	Ip *et al.* (1989) Szumess *et al.* (1980) Xu *et al.* (1995)
HBIG efficacy	57,1%	[0.254, 0.899]	Beasley et al. (1983) Palmović D (1987) Winsnes and Siebke (1985)

HBIG=hepatitis B immune globulin; HBV=hepatitis B virus; MSM=men who have sex with men

Results

Estimated NNP among MSM:

40,928 (range: 9,640-218,833)

Estimated NNP for a known HBV-positive source*:

733 (range: 200-3,282)

Equation

NNP = 1 / (CER - TER)

Control event rate (CER) = HBV prevalence among MSM*risk per sex act*(1-HBV vaccine efficacy)

Treatment event rate (TER) = HBIG efficacy*CER

*For this calculation, “HBV prevalence among MSM” was defined as 100% to reflect the risk from a known HBV-positive source

References & Acknowledgements

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