Risk factors for recently acquired hepatitis B and C infections in US blood donors in the period 2015 – 2020

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Background

Recently acquired hepatitis infections among donors are of concern indicating non-disclosure of deferrable risk at donation.

The objectives of this study are to determine demographic and behavioral risk factors, including parenteral and sexual risks, associated with recent HBV and HCV infection in US blood donors in the period after the donor deferral for men who have sex with men (MSM) was changed from indefinite to 12-months since last sex.

Methods

Four large blood collection organizations interviewed donors with recent HCV or HBV infection identified by confirmed HCV RNA-positive or HBV DNA-positive, but serology negative donations (HBV NAT+ or HCV NAT+) as cases and non-infected donors as controls (false-positivity for either HBsAg (HBVFP) or anti-HIV (HIVFP)) based on routine donation testing from 9/1/2015 – 10/31/2020.

Trained interviewers conducted telephone interviews focusing on potential exposures in the 12 months before donation; data were captured electronically. Associations between risk factors and demographic or donation characteristics were assessed comparing HBV or HCV cases to controls using standard statistical tests.

Results

Responses were obtained from 17 HBV NAT+, 33 HCV NAT+ and 553 controls.

In unadjusted analyses, behavioral risk factors that were significantly different for cases and controls:

- **HBV recent infection**
  - Females: non-monogamy, previously undisclosed risk activity (sexual/parenteral) higher number of male sex partners
  - Males: HIV/HBV/HCV-positive household member(s)
- **HCV recent infection**
  - Females: previously undisclosed risk activity (sexual/parenteral), HIV/HBV/HCV-positive household member(s), non-monogamy
  - Males: HIV/HBV/HCV-positive household member(s), non-monogamous sex partner, previously undisclosed risk activity (sexual/parenteral), non-monogamy

	Males		Females	
	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
Risk Factor* (no.)	**HBV (11)**	**HCV (18)**	**HBV (6)**	**HCV (15)**
Higher # opposite sex partners	1.5 (0.9,2.3)	1.3 (0.9,1.9)	**1.4 (1.04,1.8)**	1.2 (0.9,1.6)
Non-monogamous (12m)	4.0 (0.9,17.5)	**4.5 (1.3,14.9)**	**30.4 (2.9,317.0)**	**5.4 (1.6,18.9)**
Partner non-monogamous (12m)	7.0 (0.7,74.3)	**9.3 (1.5,58.6)**	-	-
Previously undisclosed risk	3.2 (0.6,15.9)	**5.9 (1.8,19.2)**	**7.5 (1.3,45.0)**	**22.6 (6.5,78.8)**
HIV/HBV/HCV-positive household member	**11.3 (1.9,69.3)**	**18.5 (4.0,85.4)**	8.0 (0.8,79.7)	**14.6 (3.5, 60.9)**
MSM or sex with MSM	-	1.5 (0.4,5.6)	-	-

Conclusion

Our findings are consistent with the last large assessment of risk factors in blood donors from the period 2010-2013[1], (exposure risk from an infected household member and sexual activity risk) and provide **no evidence that the adoption of a 12-month MSM deferral led to changes in the association between behavioral risk factors and new hepatitis infections.**

Transfusion Transmissible Infections Monitoring System

[1]Custer et al TRANSFUSION 2015;55:1098–1107