Title
RISK FACTORS FOR HIV IN BRAZILIAN BLOOD DONORS - A PRELIMINARY ANALYSIS

Authors
Custer, B
Goncalez, TT
Maia, S
et al.

Publication Date
2012

Peer reviewed

For those without antibody reactivity, a sample was taken in EDTA for molecular biology. (RT-PCR Cobas Amplicor Hepatitis C VirusTest V 2.0, Roche).
Results: Out of 26,004 donors studied in the analysis period, 49 (0.19%) were reactive for HCV screening, 38 of whom attended the summons. Seventeen samples (44.5%) were repeatedly reactive to EIA HCVAg/Ac (the screening Rp 4.3 ± 1.2) with anti-HCV reactive. Six samples (16%) were non-reactive in the second sample (the screening Rp 1.1 ± 0.2). Fifteen samples (39.5%) repeatedly reactive to EIA values HCVAg/Ac (the screening Rp 1.8 ± 0.8) with anti HCV non-reactive, these samples were carried out RT-PCR to detect viral genetic material and all were negative as well as the detection of Ag by CMIA.
Conclusions: (i) High values of Rp in the screening (Rp 4.3 ± 1.2), confirmed in the second sample holding similar values of Rp (Rp 4.1 ± 1.5). (ii) Low values of Rp in the screening (Rp 1.1 ± 0.2), become negative in the second sample (Rp 0.6 ± 0.2), representing a 16% false positives. (iii) intermediate values in the screening Rp (Rp 1.8 ± 0.8) persist repeatedly reactive for EIA HCV Ag/Ab without the presence of Ag and Ab in the second sample. These blood donors were following. (iv) There was agreement between AgHCV CMIA and HCV RT-PCR. We conclude that while 0.09% were discarded blood bags in this period by false positive results in HCV EIA, the screening method, we are facing a diagnostic method of good sensitivity, important for the study of blood bank donors.

4.4 HIV

P-330

RISK FACTORS FOR HIV IN BRAZILIAN BLOOD DONORS – A PRELIMINARY ANALYSIS

Custer B[1], Goncalez TT[1], Maia S[2], Capuani L[3], Birch RJ[4], Leao S[5], Miranda C[6], Proietti AB[6], Johnson B[4], Wright D[4], de Almeida-Neto C[3], Murphy EL[7]
[1]Blood Systems Research Institute, San Francisco, CA, United States of America [2]Fundcao Hemorio/Hemocentro, Rio de Janeiro, Brazil [3]Fundacao Pro-Sangue/ Hemocentro do Sao Paulo, São Paulo, Brazil [4]Westat, Inc., Rockville, MD, United States of America [5]Fundacao Hemope/Hemocentro do Pernambuco, Recife, Brazil [6]Fundacao Hemominas/Hemocentro de Minas Gerais, Belo Horizonte, Brazil [7]University of California, San Francisco, CA, United States of America

Background: Although risk factors for HIV infection are known, it is important for blood centers to understand local epidemiology and disease transmission patterns in order to reduce the risk of transfusion-transmission through appropriate testing and donor selection. Multicenter studies of HIV risk factors in Brazil blood donors have not been reported.
Aims: To assess risk factors for HIV infection in blood donors in Brazil.
Methods: A case-control study was conducted at four large public blood centers in Brazil located in major cities (São Paulo, Rio de Janeiro, Recife, and Belo Horizonte) during the time period of March 2009–March 2011. Cases were persons whose donations were confirmed positive by dual serological assays followed by Western Blot. They completed the risk factor interview following return to the blood center for notification and counseling. Controls were asked to complete the interview after donation, and were excluded from the study if donation testing was positive for any mandatory screening test. Audio computer-assisted self-interview (ACASI) surveys using touch-screen computers with keyboards and earphones for privacy were completed by all cases and controls. Stepwise multivariable logistic regression was used to estimate odds ratios (ORs) for disclosed HIV risk factors and associated 95% confidence intervals (CIs). Candidate predictor variables were entered into the statistical model if $P = 0.2$ and retained if $P < 0.05$. In addition to behavioral risk factors sex, age, race, marital status, education level, first time or repeat, and community or replacement donor status were included as candidate predictors. The main effects estimates are reported.
Results: Three hundred and forty-one cases and 791 controls completed all study procedures. Eighty-three percent of cases vs 70% of controls were male, and 51% of cases vs 25% of controls were first time donors. Being male was associated with a higher risk of infection (OR = 2.0, 95% CI 1.3–3.1). After controlling for donor demographic characteristics, the behavioral risk factors associated with HIV infection (shown in table) were being a sex partner of a man who has sex with other men (MSM) (OR = 20.6, 95% CI 9.4–45.2), having sex with an HIV+ positive partner (OR = 9.4, 95% CI 3.5–24.8), having unprotected sex with a new or unknown sex partner (OR = 8.8, 95% CI 2.8–27.9), defining one's sexual orientation as bisexual compared to heterosexual (OR = 6.0, 95% CI 2.1–16.9), or reporting IVDU or being a sex partner of an IVDU (OR = 4.1, 95% CI 1.6–10.3). Note that defining one's sexual orientation as gay/homosexual compared to heterosexual was not significantly associated with HIV infection. Overall, 7% of cases did not disclose any potential risk factor.

Table 1: Risk behaviors associated with HIV in blood donors in Brazil

Behavioral Risk Factor*	OR (95% CI)
Sex partner of MSM vs. no	20.1 (9.1 – 44.6)
Sex with known HIV+ partner vs. no	9.4 (3.5 – 24.8)
Unprotected sex with new/unknown sex partner vs. no	8.9 (2.8 – 27.9)
IVDU or sex partner of IVDU vs. no	4.1 (1.6 – 10.3)
Surgery/medical procedure in last 12 months vs. none	2.1 (1.4 – 3.3)
Multiple heterosexual partners vs. 0 or 1 partner	2.5 (1.2 – 5.4)
Multiple heterosexual partners and unprotected sex vs. 0 or 1 partner	2.0 (1.2 – 3.2)
Potential job exposure vs. no	1.8 (1.05 – 3.1)
Manicure or shave at beauty salon or barber shop vs. no	1.5 (1.04 – 2.2)
Sexual orientation gay/homosexual vs. heterosexual	1.6 (0.7 – 3.6)
Sexual orientation bisexual vs. heterosexual	6.0 (2.1 – 16.9)
Sexual orientation don't know/refused vs. heterosexual	0.8 (0.3 – 1.9)

* Male gender, lower education, first time donor, and being single, never-married also significantly associated with HIV infection.

Summary/Conclusions: The primary risk factors for HIV infection in blood donors in Brazil are having male-male sexual contact, having sex partners who are known to be HIV+ and having unprotected sex or multiple sexual partners. IVDU was also a risk factor. Many of the identified risk factors suggest that donor selection procedures at the participating blood centers may need to be re-evaluated to understand why potentially deferrable behaviors are not being reported by persons who present to donate.

P-331

INVESTIGATION OF CASES OF SUSPECTED TRANSFUSION TRANSMISSION OF HUMAN IMMUNODEFICIENCY VIRUS REPORTED TO THE AMERICAN RED CROSS

Dorsey KA, Page PL, Steele R, Krysztof DE, Foster GA, Dy BA, Eder AF, Dodd RY, Stramer SL
American Red Cross, Rockville, MD, United States of America

Background: The residual risk of transfusion-transmitted HIV (TT-HIV) in the US is estimated at ~1.5 cases per million units. Transfusion transmission is possible if blood is collected during the ~9-day window period between HIV infection and HIV RNA detection by minipool NAT. Six such TT-HIV cases from five HIV window-period donors have occurred in the US, including one reported here. Modeling suggests 11 infectious donations and 20 HIV-positive components released per year in the US.
Methods/Aims: Suspected TT-HIV cases reported to the ARC were investigated by determining the HIV status of all donors of the involved components at subsequent donation or follow-up by anti-HIV (Abbott PRISM) and NAT (Novartis) at >30 days following the implicated donation. In addition, recipients of test-negative units from donors who later HIV sero- or NAT-converted were traced. Recipient demographic and risk factor information was collected using standardized reporting forms for all suspected TT-HIV cases. Donation and infectious disease marker histories of involved donors were queried from a system-wide database.
Results: During 2003–2010, 134 cases of suspected TT-HIV were reported. Nineteen did not meet the criteria for further investigation (e.g., case withdrawn by transfusing facility, recipient not transfused or other cause identified); the remaining 115 cases involved 848 donors. More than half (71/115) were excluded as TT-HIV: in 27 cases the recipient was HIV positive prior to transfusion and in 44, all involved donors were cleared through negative test results on subsequent donation and/or follow-up. Another 21 recipients were classified as unlikely TT-HIV due to identified HIV high-risk behavior, but >1 of the involved donors could not be contacted or refused to provide a sample. Information for an additional 22 cases was also incomplete. Lastly, one TT-HIV case that occurred in 1980, prior to anti-HIV testing, was identified in 2003. Thus, no case of TT-HIV was identified due to test failure over the 8-year timeframe with 83% (111/134) of reported cases withdrawn, cleared or unlikely. Overall, 73% (618/848) of involved donors were cleared. Recipient tracing identified one infected recipient (2006) of frozen plasma from a total of 40 sero- or NAT-converting donors with a negative donation in the previous 730 days (incident donors); of note, the red cell recipient did not become infected, similar to another case reported by the ARC in 2002. Between 2003 and 2010, 323 HIV incident donors were observed implying an estimated total of 8.08 potentially infectious, window-period donors and 11.71 associated components/72 million components released during the study, or 1.6 cases/10,000,000 components distributed; this represents 40% of the US blood supply. During the 8-years, one additional TT-HIV was reported from a non-ARC blood center in 2008.
Conclusions: One recipient-driven, TT-HIV case was identified during 2003–2010; however, the case occurred in 1980 prior to HIV test availability. In contrast, all six