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Original article

Transfusion transmissible infections among blood donors from a sub-Himalayan rural tertiary care centre in Darjeeling, India

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ABSTRACT

Background: In modern health services, blood transfusion is an essentially life-saving manoeuvre. With this situation healthy donor compilation is the cornerstone of transfusion medicine. Henceforth, a provision for strict criterion in recruitment and deferral of blood donors, particularly emphasizing transfusion transmissible infections (TTI), may improve safe transfusion practice.
Objectives: The present study was executed to assess the prevalence of TTIs within blood donors at a sub-Himalayan rural tertiary care institution in Darjeeling, India; which can ultimately aid in determination of the population subset to be targeted for enhancing donor pool.
Methods: The present study was a three-year (2010–2012) retrospective study. Data was accumulated and analysed from blood bank records, pertaining to all donors who were screened for various TTIs using respective immunological methods. Then the tabulated seropositive donors were correlated with relevant epidemiological profiles.
Results: Total 28,364 blood donors were examined, comprising of 25,517 (89.96%) males and 20,985 (73.98%) voluntary donors. Cumulative seroprevalence of HIV, HBV, HCV and syphilis were 0.42%, 1.24%, 0.62% and 0.65% respectively; with solitary malaria-infected donor. The overall seroreactivity in present study significantly diminished through successive years.
Conclusions: Deployment of implicit inclusion-exclusion criteria is high on demand for reducing the prevalence of TTIs, to increase the donor subpopulation strength and ultimately to institute a safe transfusion protocol.

1. Introduction

Transfusion therapy has been the mainstay of several medico-surgical therapeutics since 1930.[1] There are 3 types of blood donors: voluntary/unpaid, family/replacement, and paid.[2] A voluntary blood donor intentionally donates blood without pursuing any remuneration, whereas a replacement donor is requested to do so by the patient or his associates.[3]

According to World Health Organization (WHO) Global Database on Blood Safety (GDBS) 2008, total around 91.8 million blood donations are collected annually. But, approximately 48% of these emanate from high-income countries, astringent to 15% of earth's population. Ten nations vouch for 65% of blood collections worldwide, and India is the third highest bidder in this respect following United States and China.[2] With almost 9.8 million units of yearly collections and 84% voluntary donors, India is expected to bang on the WHO target of 100% voluntary donations by 2020, much before due date.[4]

Blood transfusion aggravates the risk of transfusion-transmissible infections (TTIs) like hepatitis B (HBV), hepatitis C (HCV), Human Immunodeficiency Virus (HIV), syphilis, and less commonly to malaria, toxoplasmosis, brucellosis, other viral infections.[5] As of 2009, around 2.5 million Indians were infected with HIV. Succumbing to a prevalence of 0.3%, India presently stands third on planet, in numerical terms of HIV-infected people.[6] However its prevalence among subcontinental donors fluctuates through literatures, from 0.02 to 8.5%.[7]

Globally, HBsAg (Hepatitis B surface antigen) prevalence varies between 0.1 and 11.7%.[7] Amongst Indian general population and

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blood donors, it lingers within 2–8%; and 1–2% respectively.[8–10] Universally around 3% people are infected with HCV.[11] Accordingly, worldwide 0.4–19.2% blood donors test positively for HCV. In contrast, a low cumulative HCV prevalence below 2% has been reported from this country.[9,10,12–14]

Darjeeling district in India, has a high HIV prevalence of >1%, much higher than national distribution.[15] Despite that, very little is learnt about the seroprevalence of HIV and other TTIs among blood donors here. The present study accomplished at the lone tertiary medical institution in rural sub-Himalayan belt of Darjeeling, West Bengal, India; was aimed at recollecting the donors' profile, particularly emphasizing the seroprevalence of TTIs amongst them and determination of the suitable population-module to be targeted for upscaling the voluntary blood donors' strength. Consequently, the overall knowledge about blood safety measurements and a rough estimate of the infection burden in rural community can be replenished.

2. Materials and methods

The presently discussed, institutional record-based retrospective study was executed in the Department of Blood bank, North Bengal Medical College & Hospital, Darjeeling, West Bengal, India. Data from three consecutive years of 2010–2012, was retrieved

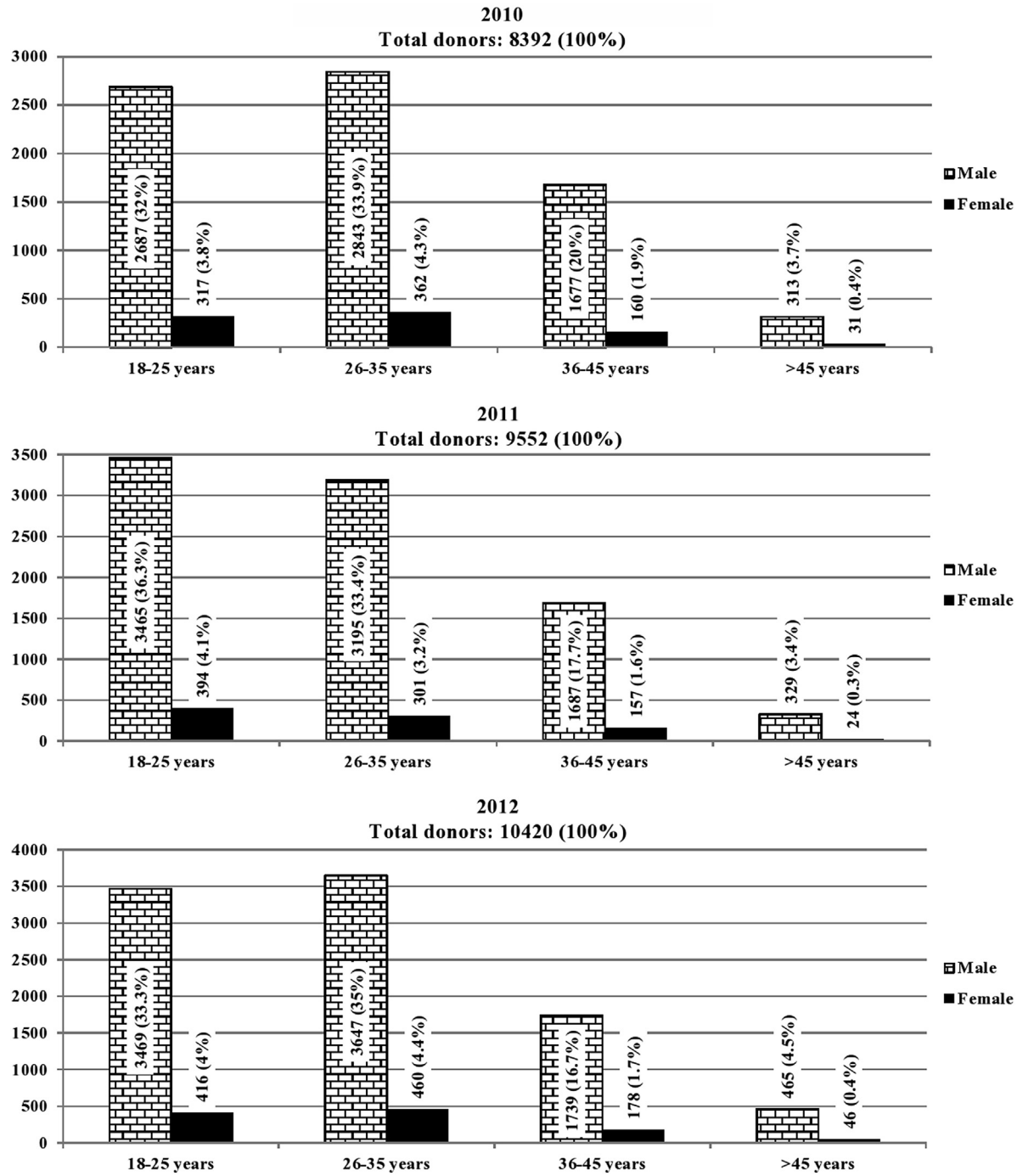

Fig. 1. Age and sex distribution of blood donors in three years (2010–12).