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A study of seroprevalence of co-infections among blood donors

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Abstract
Blood donation is considered as the most important noble work that can be done in today's world. This simple thing can save lives. But the risk involved in this has to be understood. The most important being the immediate side effects being the immunological reactions and also the long term effects. The most important being the blood borne infections. The most important infections that can be thought about are the HIV, HBV, HBC, Malaria, syphilis and the list goes on. But these are the most important and if not checked can be a very risky affair. Getting one infection in the blood is a known affair but co-infections is also a possibility which means if the person gets this infusion it could be deadly.

Keywords: seropositive, blood, donors, co- infections

Introduction
Blood transfusion is a life-saving intervention and millions of lives are saved each year globally through this procedure; however, unsafe transfusion practices also put millions of people at risk of transfusion-transmissible infections (TTIs) [1]. The main objective of blood transfusion service is to provide safe, adequate and efficient blood at all levels [2]. Although blood safety has greatly improved over the years, transfusion transmissible infections (TTIs) still pose a major health risk in India. With every unit of blood, there is a 1% chance of a transfusion-associated problem including TTIs [3]. Evaluation of data on the prevalence of TTIs namely human immunodeficiency virus (HIV), hepatitis B virus (HBV), hepatitis C virus (HCV), and syphilis among blood and blood component donors will assess the occurrence of infections in the blood donors and improves the safety of the collected blood. Because of shared modes of transmission, co-infection with HIV, HBV and HCV is a significant occurrence, particularly in areas where these viruses are endemic and even amongst apparently healthy subjects like blood donors [4]. HIV, HBV and HCV co-infection has emerged as a leading cause of morbidity throughout the world in the last two decades [5]. In HIV infected persons an estimated 2-4 million have chronic HBV infection and 4-5 million have HCV co infection [6]. The aim of our present study was to know the prevalence of co-infections among apparently healthy donors of the blood bank.

Aims and Objective
To study the sero - prevalence of co-infections among blood donors.

Materials and Methods
This study was done in the Department of Medicine, Kasturba Medical College, Mangalore.
This study was done from June 2018 to May 2020.
This study was done in 2482 patients who donated the blood.
This is a descriptive study.
5 ml of whole blood samples were collected from the subjects into plain sterile tubes and were centrifuged. The sera were separated and analysed for different TTI; HIV, HBV, HCV, Syphilis as per the standard operating procedures followed in the blood bank. Samples were analysed for antibodies to HIV1 and HIV 2, HBsAg, and HCV, by ELISA. Any serum found reactive by the first assay was retested using a second assay based on different antigen preparations and/or different test principle using the anti-HIV test, HBsAg and HCV by the anti- HCV test which are immunochromatographic sandwich assays. Test for syphilis was done by RPR.

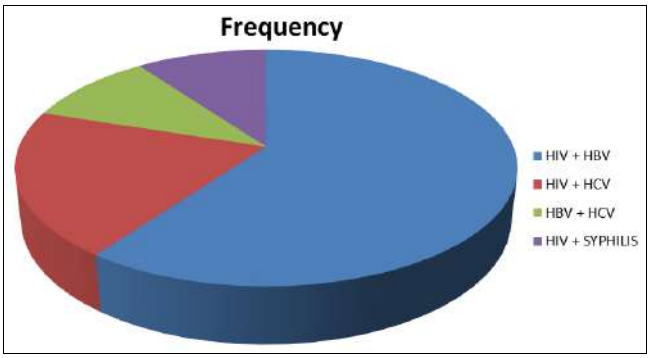
Results

Table 1: Donor Distribution

Type of Donor	Frequency
Male	1937
Female	544
Indeterminate	01

Table 2: Co-Infection

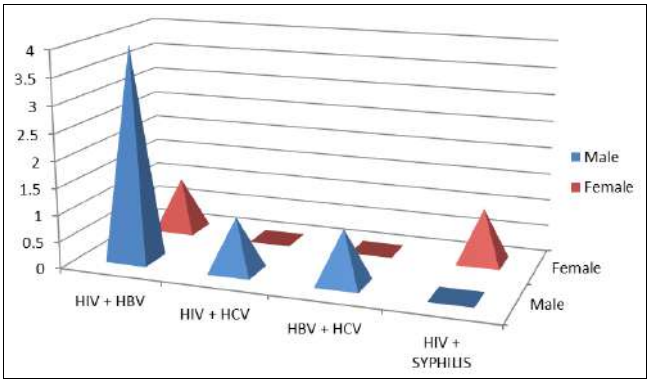
Co-Infection	Frequency
HIV + HBV	05
HIV + HCV	01
HBV + HCV	01
HIV + SYPHILIS	01
Total	08



Graph 1: Frequency

Table 3: Gender Distribution

Co-Infection	Male	Female
HIV + HBV	04	01
HIV + HCV	01	00
HBV + HCV	01	00
HIV + SYPHILIS	00	01
Total	06	02



Graph 2: Gender Distribution

Discussion

HIV, HBV and HCV have been known to coexist in an individual. Many factors favour co-infections including high degree of epidemiological similarity between HIV and hepatitis viruses with similar routes of transmission, risk factors and higher prevalence with other STDs such as syphilis. It is observed that, those HIV infected individuals who are co-infected with hepatitis viruses display rapid progression to severe liver disease and have an increased risk of hepatotoxicity associated with anti-retroviral therapy [7]. Co-infection with the three viruses increase the risk of acute and chronic liver insufficiency, cirrhosis, hepatic failure and mortalities in comparison to when a person is infected with only one of these viruses [8]. Failure to diagnose and treat co-infection at an early stage results in serious complications and sequelae. Compared to individuals infected with a single pathogen, co-infected individuals will have more risk towards morbidity and mortality of the disease. A study [9] from India showed that one third of HIV deaths are associated with HCV either directly or indirectly. So, the occurrence of these infections should be monitored carefully to ensure safer and more reliable blood transfusion.

Conclusion

The co-infections are rare but it is true to happen. This study proves that even though rare but these things tend to happen. This study intends to bring in a reality check to the people who are involved in blood transfusion in hospitals.

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