

original article

Prevalence of cytomegalovirus in paid and unpaid blood donor population in Tirana

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Cytomegalovirus (CMV) is one of the most transmitted infectious agents through blood transfusion. There were no reports on the prevalence of CMV in our donor population.

Aim

The aim of the study was to determine the epidemiology of CMV infection in blood donors and to compare the prevalence of CMV antibodies in paid and unpaid blood donors.

Materials and methods

The blood donor population was divided in paid blood donors (PBD, 1308) and unpaid blood donors (UBD, 415). Total CMV antibody assay results were analyzed and correlated with donor age, sex and socio-economic status in the whole donor population and in both groups.

Results

The CMV seroprevalence in blood donor population was 83%. The PBD showed significantly higher prevalence of total antibodies anti-CMV when compared with UBD, 92.9% vs. 51.8%.

Significant association of CMV seroprevalence with social class was noted, 88.3% "in low social class" towards 54.9%. The relationship between donor age and CMV status showed an increase in the percentage of seropositivity with age (65% in ages under 30 years old, 91.5% in ages more than 50 years old). The prevalence of the specific antibodies anti-CMV IgM was 5.5%.

Conclusions

This study showed that the population of blood donors is a population with high prevalence of CMV infection especially in PBD. Studies in patient populations are needed. Leucoreduction only might not be sufficient for all at risk patient populations.

Keywords: Cytomegalovirus, prevalence, blood donation, socioeconomic factors, population characteristics

INTRODUCTION

Selection of cytomegalovirus (CMV)-seronegative blood is a recognized way of providing blood with a greatly reduced risk of CMV transmission.¹ This association has focused attention on the epidemiology of CMV infection in blood donor population.

Human CMV is a herpes virus which is present as a latent infection in a majority of population in many countries. It causes a potentially dangerous infection that may become fatal to immunocompromised patients.^{2,3} Seropositivity differs in different parts of the world 40-100%^{4,5,6} and is therefore very important to establish local epidemiology in order to assess the risk of CMV transmission through blood transfusion.

Primary CMV infection of CMV-seronegative patients can occur through transfusion of blood products from CMV-seropositive donors. In seropositive donors, latent CMV is found in peripheral blood monocytes⁷, to a much lesser extent CMV exists as free virus in the plasma of window period donors.⁸

The prevalence of CMV in general population and among blood donors in Albania has not yet been documented. This work has been performed in order to determine the rate of seropositivity among blood donors in Albania, to compare the seropositivity among two groups of blood donors paid and unpaid and to use this data in developing proper strategies for reducing CMV infections through blood transfusion, especially in immunocompromised patients.

MATERIALS AND METHODS

National Blood Transfusion Centre in Tirana collects blood from two different groups of blood donors:

- 1 - Paid blood donors
- 2 - Unpaid blood donors which from their side are divided in:
 - a. Voluntary non remunerated blood donors
 - b. Family replacement donors

The population studied is the population of blood donors in Tirana during the years 2007-2008, divided as it is mentioned above in two groups of paid (1308) and unpaid (415) blood donors. Prevalence of anti-CMV is determined in total and divided according to age, sex, and social class in the blood donor population in general and also in each of the groups of donors. For determining the social class only the occupation of the donors was taken into account, and the donors were divid-

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