

Evaluation of syphilis infection of voluntary blood donors from northern Greece. A retrospective study from 2018 to 2023.

M. Pape¹, D. Pisokas¹, P. Lazaridou¹, C. Pargiana², I. Moschos², E. Ntinopoulou¹, A. Konstantinidou¹, V. Voulgaridou¹, G. Kaltsounis¹, D. Stoimenis¹, F. Girtovitis¹, V. Bakaloudi¹

¹Blood Center, AHEPA University Hospital

² Department of Microbiology, G.H.T. HIPPOCRATIO-Hospital of Skin and Venereal Diseases

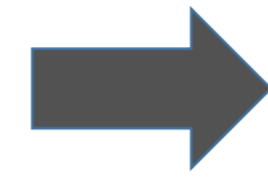
Background

Syphilis is a chronic disease that occurs worldwide and its prevalence varies in different geographic locations. Screening for syphilis is mandatory for routine blood transfusions.

The purpose of our study was to investigate syphilis seroprevalence in voluntary blood donors from Central Makedonia, region of northern Greece, and evaluate its association with demographics data.

Methods

This is a retrospective study, conducted at AHEPA Blood Center. We analyzed data on blood donors, who gave blood the last six years (2018-2023).



We evaluated the variation of the annual syphilis seroprevalence, demographics characteristics and risk factors of blood donors: sex, age, donation frequency, sexual behavior, blood donation type (voluntary or family/replacement).



Serological testing was performed using the reverse algorithm. All donations were tested with a highly sensitive antibody test (CLIA technique).

If the result of the screening test was non-reactive, the disease was ruled out. Samples with repeatedly reactive results, non-treponemal RPR test and confirmatory tests (TPHA, FTA), were additionally performed.



Confirmed syphilis infections, primary and secondary, were considered to be those cases where a repeatedly positive screening result was combined with at least one positive specific treponemal test.

Cases that combined a repeat screening test result, positive treponemal tests and positive RPR reaction were correlated with potential disease activity.

Results

122256 donations of whole blood or blood products were analyzed.

▪ We confirmed syphilis infection in 63 (0.05%) samples and annual rates did not change significantly per year: 2018 (0,06%), 2019 (0,07%), 2020 (0,03%), 2021 (0,03%), 2022 (0,07%), 2023 (0,04%).

▪ 29/63 (46.03%) incidents were assessed as possible active and all involved male donors.

▪ Of the 63 confirmed infections, 54 (85.7%) involved male and 9 (14.3%) women donors.

▪ 23 (36.5%) and 28 (44.45%) cases concerned donations from people aged 31-40 and 41-50 years, respectively.

▪ 56 (88.9%) cases involved first time donor donors.

▪ Significant difference was found between voluntary (45) and replacement donors (18).

▪ High-risk sexual behaviors were recorded in 32 cases and 27 concerned men having sex with men.

Data in detailed

	Aged <30 years	Aged 31-40 years	Aged 41-50 years	Aged 51-60 years	Aged >60 years
Male	5	19	24	4	2
Female	0	4	4	1	0
First time donor	5	21	23	5	2
Repeat donor	0	2	5	0	0
High-risk sexual behaviors	4	11	15	2	0
History of syphilis	0	3	6	1	1
Voluntary donation	3	18	19	4	1
Replacement donation	2	5	9	1	1

Conclusions

- Prevalence was higher in males as compared to females and in first time donors as compared to repeat donors.
- Most cases concerned adults > 30 years old. This may be due to intense sexual activity, limited knowledge about sexually transmitted diseases in general, resulting in not following safe sexual practices.
- The low infection rates among volunteer donors demonstrate their conscious voluntary donation, which excludes high-risk behaviors.
- Our data confirm the very low prevalence of syphilis in blood donors from northern Greece.
- Therefore, screening syphilis offers transfusion safety without significantly affecting blood supply, while providing real-time surveillance and identification of high-risk groups.