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Letter to the Editor

The Prevalence of *Yersinia* Yop-Specific Iga Antibodies in Iranian Healthy Blood Donors and Evaluation of Blood Culture of Seropositive Donors

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Dear Editor-in-Chief

In this study, we report the prevalence of *Yesinia* Yop-specific IgA antibodies in Iranian healthy blood donors. To our knowledge, this report is the first of its kind from Iran. *Yersinia enterocolitica* is an animal bacterial species that led to food-transmitted infections(1) and is major cause of septicemia after transfusion of blood products (2, 3). Mortality rate has been reported 59% in blood recipients (4-6).

For serologic diagnosis of *Y. enterocolitica*, the agglutination IgG and IgM antibody against H and O antigens are used. But the disadvantage of agglutination test is cross reactivity with other antibodies(5).

Y. enterocolitica infection from transfusion can be prevented by rejection of donors which has the history of gastrointestinal infection or contact with infected person, and storing of blood in room temperature at least 2 h before plasma separation; although cannot absolutely prevent transfusion *Y. enterocolitica* infection, additionally an estimated 3%-5% rate of donor deferral (7).

In this study, sera from 492 healthy blood donors in Tehran Blood Center were obtained for detection of *Yersinia* anti-Yop IgA antibodies (MICROGEN, Munich, Germany) by two different techniques; enzyme immunoassay (EIA) and western blot. We then cultured the RBCs of *Yesinia* sero positive donors stored in 1-6 °C for 35 days. Finally, we evaluated the association between seropositivity and blood culture results.

12.5% (62 out of 492 healthy blood donors) were seropositive with anti-YOP IgA ELISA. In immunoblotting analysis with recomline IgA, 8.5% of seropositive blood donors were positive (Table 1). The high seropositivity in population showed that the prevalence of *Yersinia* infection was high, but the severity of infection was mild.

Table 1: distribution of yersinia enterocolitica positive samples based on age with EIA

Age groups/year	Positive samples	Age percent	Female	Male
19-29	13	20/96	2	11
30-40	16	25/8	-	16
41-50	17	27/4	-	17
51-62	16	25/8	-	16

Seropositivity rates of IgA in Finland and Germany donors were 9.6 % and 10%, respectively (8). In the immunoblotting analysis, 12.8% and 19% were positive in the class IgA respectively. In another study, the prevalence of *Yersinia* antibodies in 50 healthy donors was 6% for IgG, 2% for IgA, and 2% for IgM (9). Their findings showed a lack of specificity that resulted in a high number of false-positive results. In our study, no seropositive blood donors were bacteremic (no growth any *Yersinia* bacili in blood culture). In fact, the IgA antibodies found in the present study indicated that our study donors previously had *Yersinia* infection. The rarity of bacteremia (1case in 6.5 million in France or 1 case per 9 million in the USA) revealed that the anti –YOP IgA EIA assay is not useful for reducing the risk of subclinical infection. If the anti-YOP IgA EIA used to reject seropositive donors, 8.5% of donors will be reduced that have a severe negative effect on the blood supply. Only in some regions in the world, for example, in Newzeland (7), that the incidence of *Y. enterocolitica* is high (1 case per 104000 units), the use of anti-YOP IgA *Yersinia* antibodies (EIA) for the screening of donors may be useful. While in Iran blood centers, the overall number of donors rejected with various infectious etiologies through questionnaires is 1.6%. On the other hand, the role of anti-YOP IgA EIA in the identification of *Yersinia* infection in blood donors, proposed earlier is not valid because the blood culture of all seropositive donors in our and Kendrick studies (7) was negative.

In conclusion, as noted above, the anti-YOP IgA EIA assay cannot provide an alternative practice for risk reduction by donor deferral or detection test in the identification of *Yersinia* infection in bactremic condition.

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