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APPLICATION AND EVALUATION OF POLYMERASE CHAIN REACTION (PCR) IN DETECTION OF MALARIA INFECTION IN DONORS OF TRANSFUSION CENTERS IN SISTAN - BALOOCHESTAN PROVINCE

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Introduction: After hepatitis and AIDS, malaria is a prevalent transfusion outcome in endemic areas. Using blood and its products from one side and mixing of races and societies also traveling between continents on the other side are the factors which cause this issue to be a important problem. Presence of asymptomatic carriers of malaria parasites in the endemic areas can be a source of infection in transmission of malaria by blood transfusion. Prevention and prohibition of malaria caused by blood transfusion depends on screening of blood donors and deleting infected blood samples. In the screening of blood specimens has been used parasitological, serologic and molecular

Method and Material: In this study 120 blood donors in Iranshahr in Sistan-Baloochestan province were tested with different methods thick and thin blood films, Imuno Fluorescent Antibody Test (IFAT) and Polymerase Chain Reaction (PCR).

Result: The result of all thick and thin blood films was negative. IFAT by using *P.vivax* antigen & *P.falciparum* antigen for 38 and 6 cases of donors respectively, showed a titter of antibody equal to +/- 1/20-1/320. (17 cases of first group and 4 cases of second group had a history of malaria infection). The PCR assay with using silica for DNA extraction and using the *P.vivax* & *P.falciparum* specified primers with sensitivity rate equal to 2-3 parasite per microlitre of blood was negative for studied individuals.

Conclusion: According to existing reports, although microscopic examination of blood smears is inexpensive and simple, but it is labor-intensive and time-consuming that make it insensitive for detection of low-level parasitemia in asymptomatic donor and for screening a large number of specimens. IFAT would not always show the real existence of parasite and in spite of simplicity & sensitivity because of its disability to be automated is not suitable for screening a large number of specimens. On the other hand IFAT in individuals with malaria history and absence of parasite in their blood, may be positive for a long period. It is approved molecular methods such as PCR are more sensitive and more specific than conventional microscopic examination and their great advantages is the ability to detection the infection with low-level parasitemia that may not distinguish by blood films examination. In the present study probably because of less number of specimens or limit study duration with PCR method, we did not find positive case and or probably parasitemia retains under study individuals was less than 2-3 parasites per microlitre of blood.