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Original Article

SEROPREVALENCE OF SYPHILIS IN THE BLOOD DONORS IN LAHORE

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ABSTRACT

Objective: To assess the prevalence of syphilis in blood donors in Lahore.

Design: Serum samples were obtained from prospective predominantly first time blood donors who consented to testing for syphilis from June to September 2000.TPHA test was conducted on the samples.

Setting: The blood donors were bled and tested at the blood banks attached to the teaching hospitals in Lahore and at the Institute of Haematology & Blood transfusion Service, Punjab.

Subjects: 8161 prospective predominantly first time blood donors aged 18-60 years.

Main Outcome Measures: Assessment of the prevalence of syphilis in the blood donors.

Results: 0.78% of the blood donors tested were found to be positive.

Conclusions: Blood safety is compromised due to lack of screening for syphilis and TPHA testing should be started in routine practice.

KEY WORDS: Blood safety; Prevalence of syphilis in blood donors.

INTRODUCTION

Syphilis has plagued different societies since immemorial times and it has been a matter of historical debate how syphilis infection was initially introduced in different regions. Some workers are of the opinion that Columbus's sailors were responsible for bringing it back. Others opine that the treponemal infections already existed in Africa and Asia and the spread was the resultant of a change in host parasite relationship[1]. Whatever the source, Europe was ravaged by a syphilis epidemic in the 15th century. Thousands are feared to have suffered and perished from the disease.

In early 20th century, partly as a result of affluence and mainly due to the discovery of penicillin, the incidence declined steadily. In the last half a century, the number of new cases is again gradually increasing[2]. Between 1961-1981, gonorrhoea, syphilis and non-specific urethritis increased in Europe, Africa and Asia. Between 1981-1985, in UK alone, 54000 new cases of syphilis had been identified. This was considered to be a reduction as compared to previous decade perhaps as a result of increased awareness about AIDs and modified sexual behaviour of high-risk individuals[3].

Today, syphilis constitutes only 3000 new cases but it is pertinent to point out that this is being seen more often in homosexuals[4]. What is even more alarming is that male homosexuals infected with HIV have been shown not to develop high titres of VDRL antibodies[5] and may skip detection as compared to other patients without HIV infection. The scenario is believed to be more serious in tropics and

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developing countries[6].

A high incidence of syphilis has been linked to urbanization with increased incidence reported in large cities; with drug abuse especially cocaine, which apart for its aphrodisiac effect also warrants the need to obtain easy money through commercial sex. These tendencies are markedly increased in young patients attending STI clinics and in parents of tomorrow with the implied possibility of the consequences of vertical transmission[7].

Syphilis is a systemic disease caused by a spirochete Treponema palladium which apart from spread by sexual contact and vertical transmission, is also transmitted by blood and blood products and by inoculation of infectious material.[2] Keeping in mind the changing social norms in the society, and the fact that homosexuals show a higher prevalence of syphilis and HIV, it is imperative that all blood screened for HIV should also be screened for STDs especially syphilis. Screening for STIs may also be helpful in identifying high risk behaviours in blood donors which information in our social set up is usually not forthcoming.[8] It is with this background that the present study was undertaken to assess the disease prevalence in the blood donors and unless proactive measures are taken, it might stage a comeback.

MATERIALS AND METHODS

Study Population:

Over a period of three months from June to Sept 2000, voluntary blood donors, most of them first time direct or replacement donors, who donated blood at the blood banks located at the major teaching hospitals in the city of Lahore were tested for syphilis after obtaining informed consent. This study was carried out as a pilot project to assess the seroprevalence of syphilis in blood donors. Presently, the service is not routinely testing blood donors for this disease.

During this period, 62090 donors donated blood at the designated blood banks. By random selection 8161 donors were tested for syphilis. A fresh sample was obtained prior to donation and serum was used for testing. This was a blind study and confidentiality was maintained.

Testing methodology: TPHA test was used to test the samples. The kits manufactured by Biotec Laboratories UK were utilized and were supplied by the National Institute of Health, Islamabad. In this test kit the antigens extracted from Treponema palladium are attached to formalised tanned avian erythrocytes, which are agglutinated by antibodies in the serum. A micro-plate well was employed to detect the agglutination as a measure of reactivity. After the incubation period of 60 minutes, un-agglutinated cells form a tight button at the bottom, which is interpreted as a negative test, while agglutinated cells form a matrix over the well, which can be graded from 1+ to 4+ positive. The test is quite sensitive and is used as the main screening test for syphilis in many laboratories.[4, 9]

RESULTS

A randomly selected population of 8161 donors out of a total of 62090 donors bled who willingly consented were tested for syphilis antibodies by TPHA method. 64 tested positive. The percentage prevalence was found to be 0.78%. This was a pilot study as routine testing for syphilis is not in place and only 13% of the donors bled were screened.

DISCUSSION

We have identified a fairly high prevalence of TPHA positive donors (0.78%). This is much higher to that of HIV and almost a third of HBV in our blood donors.[10] Although, our data is lower to that reported internationally for example in Jamaica it is 3%[11] or as in Ethiopia where the incidence has steadily increased from 4.8% in 1991 to 9.2% in 1993 [12] to12.8% in 1997[13] and 0.765 % in Argentina.[14] In Zimbabwe and Mexico it is 0.1 % [15, 16] and in Malaysia it is 0.24%[17]. Generally western countries with well-developed transfusion services have a low incidence of syphilis.[18]

It is interesting to note that all the studies, which have reported a high incidence, have shown some linkage to substance abuse or early and increased sexual activities. The outbreak of epidemic proportions, which has been reported in 1996 in Atlanta, has also identified similar associated factors.[19] The alarming increase in the prevalence in the UK[20] also notes such associated factors.

Treponema pallidum is a fragile organism whose survival at 2-6°C beyond 72 hours is doubtful. This and the fact that most of the hospital patients are already on one or more antibiotic regimen have prevented the development of post transfusion syphilis to a large extent in our scenario.

It is time however that routine screening for this disease is started. This is necessary as our societies are rapidly undergoing cultural changes. Information technology and cable TV networks have made vast inroads in the social fabric. The sexual inclination and practices in our society are affected by what is happening elsewhere. Before long, it can be rightly forecasted that we will be seeing an increase in the incidence as reported by other countries. The major implication of our work is that proactive measures be taken by introducing TPHA screening for syphilis antibodies to ensure blood safety.

CONCLUSION

We conclude that the prevalence of syphilis is substantive. It is perhaps only the tip of the iceberg in our society; immediate introduction of syphilis screening of blood donors is necessary.

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