Original Article

SEXUALLY TRANSMITTED INFECTION (SYPHILIS) IN LONG DISTANCE TRUCK DRIVERS

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Objective: This comparative cross sectional study was carried out in the department of Microbiology Shaikh Zayed Hospital Lahore.

Material and Methods: This study was conducted in the department of microbiology Sheikh Zaid Hospital, Lahore on one hundred and ninety nine (199) long distance truck drivers. Presence of syphilis was detected by rapid plasma reagin and enzyme link immunosorbent assay for treponema pallidum syphilis.

Results: 10.5% Long distance truck drivers showed syphilis positive by enzyme link immunesorbent assay and 20.1% by rapid plasma reagin. Number of cases missed by rapid plasma regain were 03 (1.5%). Sensitivity ,specificity, positive predictive value and negative predictive value of rapid plasma reagin compared with enzyme link immunosorbent assay were 85%, 87%,42% and 98% respectively.

Conclusion: Enzyme Link immunesorbent assay syphilis is more accurate for diagnosis of syphilis than rapid plasma reagin.

Key words: Enzyme link immunosorbant assay, Rapid plasma regain, Syphilis, Long distance truck drivers.

Introduction

Syphilis is a complex, important, sexually transmitted, multiple system disease of human apart from aquired immune deficiency syndrome (AIDS). Infection is acquired by sexual contact with infected person (rarely by blood from person having spirochetemia) and congenitally by trans-placental infection from infected mother to fetus.[1]

Sexually transmitted infections (STIs) are some of the most common causes of illness worldwide. STIs accounted for 87% of all cases, reported among the top 10 most frequently reported diseases in 1995. STIs are far most common in developing countries than industrial countries. In many developing countries STIs ranks among the top five diseases.[2]

Incidence of STIs, one of the most common communicable diseases in the world, is rising despite improved methods of diagnosis and treatment.[3] World over, excluding human immunodeficiency viruses (HIV) and AIDS, there are 333 million new cases of STIs per year. In 1995 in south East Asia alone an estimated 150 million new cases occurred.[4]

Currently there is no STIs reporting system in Pakistan and therefore information about STIs prevalence is limited.[5] Gonorrhoea and syphilis are commonly seen STIs in Pakistan.[6] Incidence of sexually transmitted infection is raising despite improved methods of diagnosis and treatment.[3] Evidence that sexually transmitted infections may facilitate HIV infection has focused attention to the situation.[7]

Health professionals believe that the incidence of STIs are increasing in Pakistan.[8] However, these studies are often hospital and institution based which makes it difficult to comment on the prevalence of STI's in general community. The situation in addressing these problems at policies and program level is very complex in Pakistan, due to various social and cultural barriers.[9]

In Pakistan according to National Transport Research Center there are about one hundred and twenty eight thousands licensed trucks and about half million truck drivers. Studies conducted in Pakistan have also shown that a very high percentage of long distance truck drivers (LDTD) indulge in unsafe sexual relationship with commercial sex workers both male and female and other partners.[10]

LDTD are highly mobile population characterized by multiple sex partners. A study was undertaken on 670 LDTD to investigate prevalence of STIs (AIDS, syphilis, hepatitis-B infection and gonorrhea) in Nagpur city, Central India. A total of two hundred and ninety three (293) (43.7%) subjects had one or more signs/symptoms suggestive of STIs. The prevalence of HIV infection, syphilis, hepatitis-B infection and gonorrhea was observed to be 15.2%, 21.9%, 5.1% and 6.7% respectively.[11]

one cross section study was conducted among LDTD to determine the prevalence of sexually transmitted diseases and antibodies to HIV. A total of eighty drivers and their assistants on route from port

to determine the prevalence of sexually transmitted diseases and antibodies to HIV. A total of eighty drivers and their assistants on route from port of Mombassa to countries in East and Central Africa were enrolled into the study. Sero prevalence of HIV was 18% and for syphilis it was 4.6%.[12]

Another study conducted on three hundred LDTD in Karachi showed that the prevalence of syphilis was 12% but no HIV case was detected. This study indicated that population of truck drivers in Pakistan are at high risk of acquiring and spreading STI's and HIV due to high risk sexual practices.[13]

Syphilis is much more prevalent disease as compared to AIDS which is considered to be of low prevalence but high risk in Pakistan. Pakistan has a narrow window of opportunity to act decisively to prevent the spread of HIV. The estimated HIV/AID burden in Pakistan is still low (around 0.1% in adult population which is 70000-80000 persons). However, there is growing evidence of high-risk behaviors that could contribute to local concentrated epidemics. The combination of high risk behaviors and limited knowledge about HIV among LDTD will lead to rapid spread of HIV.[14]

Materials and Methods

This comparative and cross-sectional study was carried out in the Department of Microbiology, Shaikh Zayed Hospital Lahore, which is a tertiary care university teaching hospital. The present study comprised of one hundred and ninety nine samples from LDTD and their assistants, irrespective of age and duration of their profession when driving trucks or assisting drivers along inter-state transport routes. Sample Collection and Laboratory Methods Samples stored and available from sero surveillance of HIV sited in Lahore in 2001 in collaboration with National AIDS control program were used in this study. Rapid plasma reagin (PRP) and Enzyme link immunosorbant assay (EIA) for treponema pallidum were carried out on the samples.

Results

Sero prevalence survey of syphilis was carried out on samples collected and sera were stored in 2001, from LDTD and their assistants,age range was from18-60 years irrespective of education and duration of their profession. Maximum number of subjects were noted in 21-30 year of age 103 (51.75%) while minimum number of subjects were present in 51- 60 years of age 6 (3.01%). In LDTD (n-199) positive cases by EIA and RPR were 20 (10.1%) and 40 (20.1%) respectively. This difference of EIA and RPR is statistically significant, P value<0.001.**(Table-1)** In our study total number of true positive/active disease (EIA and RPR reactive) cases were 17(8.54%) and number of biological false positive (EIA negative and RPR positive) were 23(11.5%).The total number

Table-1: Percentage of EIA and RPR Positive cases in LDTD.

	EIA Positive		RPR Positive		
	Number	Percemtage	Number	Percemtage	%
DTD (n=199)	20	10.1	40	20.1	<0.001

Table-2: Percentage of positivity in LDTD according to the disease pattern.

EIA Positive + RPR Positive		EIA Positive + RPR Negative		EIA Negative + RPR Positive		EIA Positive + RPR Negative	
No.	%	No.	%	No.	%	No.	%
17	8.54	03	1.50	23	11.55	156	78.3

Table-3: Percentage of true positive active disease according to various age ranges in LDTD

	LDTD (199)		
Age Distribution	No. Of Cases	Positive by EIA+RPR	Percentage
18-20	10 (5.02%)	02	20.0%
21-30	103 (51.75%)	08	7.7%
31-40	55 (27.64%)	05	9.09%
41-50	25 (12.56%)	02	8.0%
51-60	6 (3.01%)	-	-

Table-4: Percentage of missed (non-reactive) cases by RPR in LDTD.

Group	Positive EIA	Positive EIA + RPR	Missed by RPR	% of missed cases	P-value
LDTD	20	17	03	1.5%	>0.05

of latent cases/old cases were 3(1.5%). and number of true negative(both EIA and RPR negative)were 156(78.39%).**(Table-2)**

Maximum number of true positive /active disease cases seen were 8 (7.71%) in 20-30 years of age and only 2 (4.02%) cases were seen in 41-50 years. No case of true positive /active disease was seen in 51 -60 years of age. **(Table-3)** Total missed (non reactive) cases by RPR, were 03 (1.5 %) P value >0.05. **(Table-4**) The sensitivity, specificity, positive predictive value and negative predictive value of RPR when compared with EIA were 85%, 87 %, 42% and 98% respectively.

Discussion

STIs are more dynamic than other diseases prevailing in the community. Their epidemiological profile varies from country to country and from one region to another within a country, depending upon ethnographic, demographic, socio economic and health factors.[15] The epidemiology of STIs has not been studied in normal representative surveys in Pakistan. However, the few studies that have been undertaken suggest that STIs are not uncommon.[4]

Studies of high- risk groups in Pakistan were commissioned as a result of increasing awareness of vulnerability of Pakistan to a wide spread HIV epidemic, and a need for intervention in LDTD and other high risk groups to improve protection against HIV and other STIs.[16,17] It is generally accepted that transport workers will have a higher level of sero prevalence of syphilis and other STIs than the general population.In our study sero prevalence of syphilis in LDTD was 10.1%, while in study conducted in 2005 syphilis was reported 1.1% in Lahore, and 4.0% in Karachi.[18] When sero prevalence of syphilis was compared with the international studies on LDTD a mixed trend was observed, e.g. a study conducted in Dhaka, by Alam et al. on truck drivers and their assistants and other workers of truck stand, showed syphilis as 4.1% in males and 2.9 % in female workers.[19] Another study conducted among truck drivers in Tangling China ,according to this study syphilis was 0.7%.[20] Gibney showed the prevalence of syphilis as 5.7% in a cross sectional study of Bangladesh transport and trucking industrial workers.[21]

In two different studies conducted in Nagpur city, Central India on LDTD for prevalence of STIs, showed syphilis 21.9% and HIV15.2%.[22] Similar study on truck drivers in Cameroon cited syphilis as 16 %.[24] Overall prevalence of syphilis in China was as low as 0.7%[20] in LDTD while on other areas syphilis is reported as high as 21.9%.[11] Comparing these studies results with our study a variable trend was observed.

Comparing the results of study conducted on sero prevalence of syphilis in LDTD in 2005 at Lahore[18] with current study, decrease in prevalence of syphilis was observed highly significant statistically (P value <0.01). while the same study results when compared with Karachi decrease in syphilis was again significant,Pvalue <0.05.These results also showed that negative predictive value of RPR is much better than its positive predictive value. These results are comparable with our study results. These studies showed that RPR is not a reliable test for screening purposes especially in high-risk populations. More reliable tests such as EIA, EIA- RPR and treponema pallidum haem agglutination (TPHA) and PCR should be used for screening purposes.

In Pakistan chances of acquiring and spreading STIs and HIV in high risk groups are very high and the documented presence of high-risk sexual practices suggested the potential for rapid spread of HIV and others STIs.[28] We can judge from these results that cases of syphilis in high- risk groups are in decline in Pakistan due to batter awareness, use of various types of protective measures and also about treatment guidelines.

Conclusion

Our study results of compared with other studies in the same region, suggested that syphilis prevalence has decreased in the recent years. Biological false reactions comprise a high proportion of all RPR reactions. Therefore, the use of RPR as a screening procedure is challenged. The reliability of an EIA methodology as a screen for ac tive syphilis in LDTD has been established in the present study. Treatment and rehabilitation are specially recommended keeping syphilis in currently low level in our setup. Further studies on larger groups are needed to find out the actual status of syphilis in high-risk groups in Pakistan. In the future studies it would be useful to use EIA for screening purposes. Molecular methods may also be incorporated for rapid and accurate detection of syphilis especially in high-risk groups.

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