



SAARC

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The SAARC Journal of Tuberculosis, Lung Diseases and HIV/AIDS is the official journal of the STAC. The Journal's main aim is the continuing education of personnel and the dissemination of the most up-to-date information in the field of tuberculosis, lung diseases and HIV/AIDS. It is devoted to dissemination of knowledge concerning various aspects of tuberculosis, lung diseases and HIV/AIDS. All articles relevant to the practice of this Journal and quality health research are published. The Journal is an appropriate forum for the publication of articles concerning the social, economic, public health, epidemiology, diagnostics, genetics etc. in the area of tuberculosis, lung diseases and HIV/AIDS. The scientific manuscripts presenting the results of public health importance are encouraged. The novel case reports which adds to the existing knowledge and consistent with the scope of Journal will be considered for publication. The Journal accepts review/mini-review, case report, short communications, and letters to editors within the scope of the journal.

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Editorial

World Health Organization estimates of the global burden of disease caused by TB were: 9.4 million incident cases (range, 8.9 million–9.9 million), 14 million prevalent cases (range, 12 million–16 million), 1.3 million deaths among HIV-negative people (range, 1.2 million–1.5 million) and 0.38 million deaths among HIV-positive people (range, 0.32 million–0.45 million) in the year 2009. The 22 High Burden Countries that have received particular attention at the global level since 2000 account for 81% of all estimated cases worldwide. Among these 22 High Burden Countries, four are from SAARC region (Afghanistan, Bangladesh, India & Pakistan). Globally, India alone accounts for an estimated one fifth (21%) of all TB cases.

Socially disadvantaged populations comprise, those living in absolute economic poverty, who have little access to health services because of the reasons that are ethnic group, geographical setting, gender, literacy level, living state, social segregation and migration. The World Bank defines absolute poverty as living on US\$ 1 per person per day or less. The United Nations Millennium Development Goals (MDGs) call for a 50% reduction in the proportion of people living on less than US\$ 1 a day between 1990 and 2015.

The World Health Assembly 2009 resolution on the prevention and control of drug-resistant TB emphasizes that TB control strategies must concentrate on a wider range of factors including the social determinants of health. The association between poverty and tuberculosis is well established. Even within the developed countries the highest rates of disease are seen in the poorest segments of the community. As the world population increases in some of the poorest areas of the world so the number of people living in poverty has increased.

World Health Organization has begun a process of intensified focus on the social determinants of health and the work of the Global Partnership to Stop TB to address poverty is especially important. In their document WHO, 2005, “Addressing poverty in TB Control: options for national TB control programmes” addresses the integration of pro-poor measures in TB control programmes and offers guidance for national TB control programmes on the practical issues involved and options for action. The six principal steps recommended are 1). Identify the poor and vulnerable groups in the country/region served by the national TB control programme. 2). Determine which barriers prevent access of the vulnerable groups to services that provide TB diagnosis and treatment. 3). Assess potential actions to overcome the barriers to access. 4). Review the situations and population groups requiring special consideration. 5). Explore possibilities for harnessing additional resources. 6). Evaluate the impact of pro-poor measures.

Much work needs to be done to encourage, pinpoint and implement comprehensive means to address the control of tuberculosis and other diseases through strategies to reduce poverty and encourage community development. There must be a coordinated struggle to deal with the poverty and to address the poor nutrition and poor living or working conditions that are responsible for vulnerability to TB. Innovative measures to make sure patients complete their course of drugs are needed to prevent drug resistance. National TB control programmes can and should explicitly include pro-poor objectives in their strategic plans and interventions. The pro-poor approach should augment and enhance the core objectives of national TB control programmes to identify and effectively treat more TB patients.

STUDY ON THE PREVALENCE OF PULMONARY TUBERCULOSIS AMONG HIV POSITIVE ATTENDING HIV CLINICS IN EASTERN NEPAL

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ABSTRACT

Background: Tuberculosis (TB) is an infectious disease caused by *Mycobacterium tuberculosis*. More than 2 billion people are infected with TB bacilli worldwide. It is a leading public health problem particularly in the developing countries. The HIV epidemic has increased the global tuberculosis burden. TB is the commonest opportunistic infection and leading cause of mortality of People living with HIV (PLHA). Tuberculosis is a major public health problem in Nepal. The objective of the study is to determine prevalence of Pulmonary Tuberculosis among HIV positives attending HIV clinics in Eastern Nepal, and to assess the socio-demographic factors associated with TB and HIV/AIDS.

Methodology: Cross-sectional prospective study was carried out among HIV positive attending different VCT and HIV clinics from Sunsari Morang and Jhapa district of Eastern Nepal. Face to face interview was performed and sputum sample were collected using convenience sampling technique. Data was collected from PLHA on related information on Socio-demographic profile, risk taking behavior with the help of pretested semi-structured questionnaire. Univariate and bivariate analysis were performed using SPSS 15.0. Chi-square test was performed to establish statistical significance between dependent and independent variables.

Results: Out of total 242 PLHA, 75.2% were males and 24.8% females; around half of them (48.8%) were in the age group of (30-39) yrs, 23% in (25-29) yrs, and 15.7% in (20-24) years. Prevalence of pulmonary tuberculosis was found to be 27.3% (n=66). PTB was high among IDU's (48.6%), followed by clients of CSWs (21%), housewife (13.6%), highway truck drivers (10.6%) and CSWs (6%).

Conclusion: Prevalence of PTB is very high among PLHA attending VCT & HIV clinics of Eastern Nepal. This study reveals that PTB is significantly associated with increasing age, risk taking behavior and place of residence. There is urgent need of active case finding as well as periodic screening among people living with HIV/AIDS of this region to address HIV-associated TB morbidity and mortality.

Keywords: Tuberculosis, PTB, HIV, TB/HIV co-infection, Dharan, Eastern Nepal

INTRODUCTION

Tuberculosis (TB) is an infectious disease caused by *Mycobacterium*. More than two billion people,

equal to one-third of the world's population, are infected with TB bacilli. It is a leading public health problem worldwide particularly in the developing countries. There are about 9 million estimated new cases of TB occurring globally each year.¹ Tuberculosis is a major public health problem in Nepal, being endemic area for TB where more than 45% population is infected.² TB is more common among reproductive age group (15-49yrs). Out of

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40,000 new TB cases reported each year in Nepal, 20,000 are infectious.² HIV/AIDS has emerged as one of the major problem within South East Asian Countries, revealing low general population prevalence rate, but with concentrated epidemic. Nepal as a SAARC country is ripe with vulnerability due to high risk behavior groups.³

The HIV epidemic has increased the global tuberculosis burden. Estimating the proportion of HIV infection among TB cases can act as early warning system for the spread of TB due to HIV in the country. HIV infection makes an infected person more susceptible to both pulmonary and extra pulmonary forms of TB.⁴⁻⁶ Compared to an individual without HIV infection, HIV infected patients are up to 10 times as likely to develop TB.⁷ Among the different opportunistic infection (OIs), tuberculosis is the most common in HIV/AIDS accounting for 40% deaths in Africa and South East Asia.⁶ Various studies have documented the occurrence of TB among HIV infected patients ranging from 46 to 80 percent.⁸ In 1998, it was observed in Nepal that out of fourteen AIDS cases, 11 (78.5%) had tuberculosis, whereas during 1998-2002, out of 442 AIDS cases 357 (80.4%) had TB.⁹ Similar study in 2001-2002, from western Nepal observed that out of 81 HIV seropositive 28 (34.6%) had tuberculosis.¹⁰

Collaboration between TB and HIV/AIDS program is essential in order to tackle the dual burden of the disease. Despite the formulation of policies and strategies of TB/HIV collaboration in Nepal, there's a lack of strong evidence to illustrate the exact situation of the collaborative activities at implementation level. TB HIV coordinating authorities with clearly defined terms need to be established at all levels of the district to achieve effective collaboration between existing HIV AIDS and TB programmes.¹¹ The objective of the study was to determine prevalence of Pulmonary Tuberculosis among HIV positive patients attending HIV clinics in Eastern Nepal, and to assess the socio-demographic factors associated with TB and HIV/AIDS.

METHODOLOGY

This cross-sectional prospective study was carried out in Sunsari, Morang, and Jhapa districts of Eastern region of Nepal, among an HIV infected cohort. The representative sample was collected to find out burden of pulmonary tuberculosis using active case finding in different community level VCT and STI/HIV clinics. Among a total of 900 high risk population 242 HIV positives were included in the study. Convenience sampling technique was applied to know the prevalence of PTB among HIV positive population within one year of the study period.

Data was collected from below mentioned centers with the help of community mobilizers, peer groups and some volunteers. They were mobilized in community to identify risk behavior group of people by using snowball technique and refer them up to VCT and STI centers where further testing for HIV status was done and investigated for Pulmonary TB.

Data was collected from following centers - VCT/ HIV clinic of BPKIHS, Dharan Positive Group (DPGs), KYC Punarjeevan Kendra Dharan, Mobile VCT and STI Management clinic of SIDC (Society Improvement and Development Centre) Dharan, Ithari, Inaruwa, Biratnagar of Sunsari and Morang district, similarly from Blue Diamond Society Ithari, Morang AIDS-PLWH Society (MAPS), Nav Kiran Plus Biratnagar, VCT & STI center of Damak, & Labh Kush Aasharam Chandragadhi, Jhapa.

Data collection and management

All the subjects were interviewed separately and confidentiality was maintained. Questions were asked in local language and recorded in English language. Three specimen of sputum (One early morning and another two on spot) were collected and processed at TB research laboratory, BPKIHS. Acid Fast Bacilli (AFB) were observed by Ziehl-Neelsen (Z-N) staining, and the number of bacilli (1+, 2+, & 3+) was graded according to guidelines

of National Tuberculosis Center (NTC), Nepal. All sputum positive cases were provided anti tuberculosis treatment from nearest DOTS center and sub centers.

Data analysis

Data were entered in to Microsoft office Excel 2003 and univariate and bivariate analysis were performed with software SPSS version 15.0. Chi-square test was used to test the significance between the categorical variables. Probability of significance was set at 5% level of significance.

Ethical considerations

The study was conducted after acceptance by ethical committee of B.P. Koirala Institute of Health Sciences. Before conducting the study a written permission was taken from following NGO/ INGO; Society Improvement and Development Centre (SIDC), Asian Medical Doctors Association (AMDA), Kirat Yakthum Chumblung-Punarjeevan Kendra (KYC-PJK), Sahara Nepal, and Blue Diamond Society (BDS). Verbal and written consent was obtained from each participant and confidentiality was maintained.

RESULTS

Among the total of two hundred forty two HIV seropositive cases, male to female ratio was 3:1 and majority (48.8%) were between 30-39 yrs age group. The prevalence of pulmonary tuberculosis was found to be 27.3% (Figure 1).

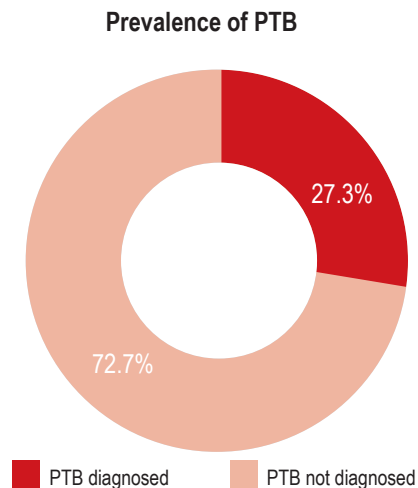


Figure 1. Prevalence of pulmonary tuberculosis among the HIV positive attending HIV clinics in Eastern Nepal

The study population had been ethnically divided into five categories (Table 1). More than 40% of the populations were from the Major Hill Caste (MHC), 38 % belonged to the Hill Native Caste (HNC), 5.4% Terai Middle Caste (TMC), and 9.1% Terai occupational Caste (TOC). Sixty three percent of them were Hindus followed by Buddhist/Kirat/ Christians (34%) and around 2% Muslim. In terms of marital status, 55.4% were married, 15.3% separated/divorced and 5% widows/widower. Half of them (51.7%) were from Sunsari, 30.2% from Jhapa and 18.2% from Morang district. In terms of migration, 10.3% migrated from hill and 10.7% from terai. Majority (68.6%) of the subjects migrated for the job where rest was for travels (17.6%) and education (13.7%). More than Ninety (90.5%) percent were literate. Large proportions (21%) of the participants were skilled laborer,

Table 1. Socio-Demographic characteristics and PTB among the study population

Characteristics	Study population HIV/AIDS (n = 242)		
	Total No (%)	PTB +ve No (%)	P value
Gender			
Male	182(75.2)	52(28.6)	0.429
Female	60(24.8)	14(23.3)	
Age in years			
0-19	10(4.1)	2(20.0)	0.486
20-24	38(15.7)	8(21.0)	
25-29	56(23.1)	13(23.2)	
30-39	118(48.8)	35(29.7)	
40 yrs and above	20(8.3)	8(40.0)	

Table 1. Continuous

Characteristics		Study population HIV/AIDS (n = 242)		
Caste/ Ethnicity *				
Major Hill Caste(MHC)		97(40.1)	26(27.4)	0.947
Hill Occupational Caste(HOC)		14(5.8)	2(40.0)	
Hill Native Caste(HNC)		92(38.0)	26(28.3)	
Terai Middle Caste(TMC)		13(5.4)	9(24.3)	
Terai Occupational Caste(TOC)		26(10.8)	3(23.1)	
Religion				
Hindu		154(63.6)	46(29.9)	0.230
Others(Kirat/Buddhist/Christians)		88(46.4)	20(22.7)	
Marital status				
Unmarried		59(24.4)	38(28.4)	0.014
Married		134(55.4)	14(23.7)	
Widows / widower & Separated / Divorced		49(20.3)	14(28.6)	
Place of residence				
Sunsari		125(51.7)	32(25.6)	0.001
Morang		44(18.2)	3(6.8)	
Jhapa		73(30.2)	31(42.5)	
Migration status				
Not migrated		191(78.9)	49(25.7)	0.187
Migrated from				
Hill district		25(10.3)	6(24.0)	
Terai district		26(10.7)	11(42.3)	
Literacy				
Illiterate		23 (9.5)	8(34.8)	0.493
Literate				
School education(Primary)		170(70.2)	42(24.7)	
Up to class ten(Secondary)		37(15.5)	13(35.1)	
SLC and above		12(5.0)	3(25.0)	
Occupational status				
Agriculture		16(6.6)	4(25.0)	0.014
Business / sales		23(9.5)	13(56.5)	
Professional / Administrative		21(8.7)	4(19.0)	
Skilled laborer		53(21.9)	16(30.2)	
Unskilled laborer		39(16.1)	12(30.8)	
Unemployed (Housewife,& Student)		90(37.1)	17(18.9)	
Income per month				
Less than Rs. 2,250		118(48.8)	30(25.4)	0.081
Between Rs. 2,251 – 5,000		107(44.2)	31(29.0)	
More than Rs. 5,000		17(16.1)	5(29.4)	

*MHC included Brahmins, Chhetris, and Newar. HOC included people were kami (Bishwakarma), Damai, Sarki, etc. Similarly HNC included people of Mongolian origin such as Rai, Limbu, Magar, Gurung, and Tamang. TMC included Shah, Thakur, Mandal, Mehta, Tharu (Rajbanshi), Yadav, Singh. TOC included Mushar, Khatbe, Jhagar, Mallik.

followed by unskilled laborer 16.1%, housewife 12.8%, business/sales 9.5%, police/army 2.5%, agriculture 6.6% and students 1.2%. On the basis of poverty line in Nepal, the study population has been grouped into three levels of income. Majority of the study population had income less than Rs. 2250 (48.8%), 44.2% between Rs. 2251-5,000 and only 16.1% earn above Rs. 5,000/-.

The prevalence of PTB among males (28.6%) was higher than female population (23.3%). Similarly it was higher in Hindus (29.9%) than other religions (22.7%). PTB was high among HNC (43%) and MHC (37.3%) & nearly 13% was observed in TMC. In relation to PTB and migration status, those migrated from terai were significantly higher (42.3%) than hill districts (24%).

PTB among literate having secondary education was slightly higher (35.1%) than among illiterate (34.8%). It was similar in subjects who studied more than SLC (25%) and primary education (24.7%). The difference was not significant among both groups. But the prevalence of PTB was found to be higher among subjects related with business/sales (56.5%), whereas the subjects involved in agriculture had low prevalence (25%), followed by unskilled laborers (30.8%) skilled laborers (30.2%), unemployed (18.9%) and professional /administration (19%). The difference was statistically significant. In terms of marital status PTB among married was 23.7% but no significant difference was observed between widower/divorced (28.6%) and unmarried (28.4%). PTB in relation to economic status, it was found that 29%

among those who had income between Rs. 2251 - 5, 000 and similar (29.4%) with income more than 5,000/- but lower (25.4%) prevalence was observed with income below Rs.2,250/- .

PTB was high amongst drivers (46.7%), almost similar in CSWs (33.3%) and in Clients of CSWs (33.3%). However the difference was not significant. In case of smoking habit, the prevalence of PTB was slightly higher (29.2%) in non smokers than smokers (26.6%). Majority of the PTB positive cases (8.8%) had knowledge about TB while only few of them (1.6%) didn't have knowledge about TB. PTB positive cases who had been in contact with PTB showed high prevalence (11.1%) than those who did not have contact with PTB (6.2%). The prevalence was high (43.3%) among HIV with PTB positive group having past history of TB. The difference was highly significant. A direct association between PTB positivity and duration of HIV infection was observed. Subjects who were recently infected with HIV showed low prevalence of PTB (8%), in comparison to infection more than five yrs had higher (24.4%) and those infected for more than five yrs had 37.2%. The difference was significantly high ($p < 0.005$). More than half of study population 129(53%) were IDUs, whereas 17% clients of CSWs, and 5% CSWs. MSMs were found not to be infected with HIV/AIDS. Among the study subjects, majority (38.9%) of IDUs were unmarried (Figure 2). The proportion of widow/separated were higher among CSWs (34.2%) whereas lowest (6.8%) among drivers. Most of the clients of CSWs were found to be married (34.7%).

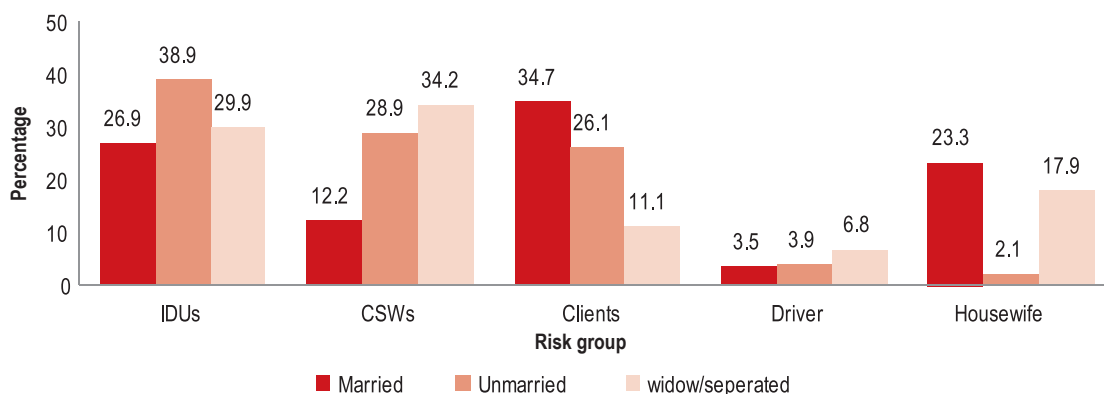


Figure 2. Distribution of the possible risk of HIV transmission according to marital status

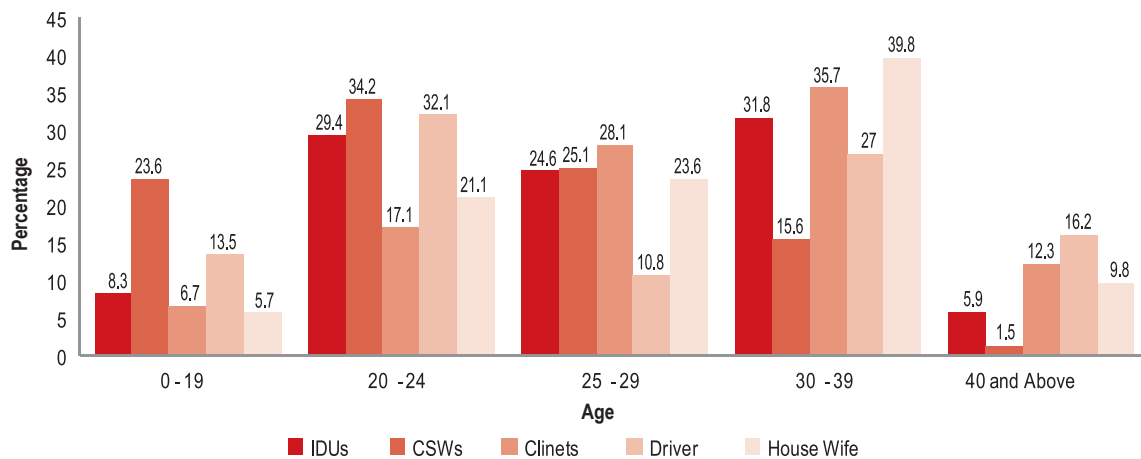


Figure 3. Distribution of the possible risk of HIV transmission with age interval of participants

Distribution of the possible risk of HIV transmission, majority were housewife (39.8%), spouse of risk group people, followed by IDUs (31.8%), clients of CSWs (35.7%), and drivers (27%) were in the age group of 30-39 yrs while opposite result was found in case of CSWs, majority (34.2%) were 20-24 years (Figure 3).

DISCUSSION

In this cross-sectional study, a total number of 242 subjects were enrolled during the study period. The gender of the study population constituted of 75.2% male and 24.8% female. This study is supported by a study done at United Mission Hospital Tansen (UMHT P Ghimire et al,¹⁰ in which the corresponding percentages were 75% male and 25% female, another study by Dhungana GP et al showed 66% male and 34% female the reason may be study population were only from HIV clinic based with or without undergoing antiretroviral therapy in Kathmandu. The prevalence of PTB among HIV positives in our study was found to be 27.3%. A study done by P. Ghimire et al during 2001-2002 in Tansen Mission Hospital,¹⁰ showed slightly higher prevalence (34.6%) of PTB among HIV positives. The reason may be the subjects of this study was more heterogeneous and constituted new cases from community with active case finding among high risk groups. Similar result was found in the study done in Kolkata (India) by M.K. Bhattacharya et al¹², which showed, 24.17% PTB among HIV positives. National survey of Nepal 1991-2000,

documented 312 tuberculosis patients in 473 AIDS cases i.e. 66% co-infection.⁹

The study revealed that majority of HIV positive subjects were in the age group of 30-39 years (48.8%) among them 29.7% found to be PTB positive. The PTB prevalence had an increasing trend with the increase of age interval. The Prevalence of PTB was 20% in age group (0-19) years, 21% in (20-24) years, 23.2% in (25-29) years, 29.7% in (30-39) years and 40% in 40 years and above. Similar findings, P Ghimire et al, reported HIV/AIDS cases were around 40% age group of (21-30) years, 45.7% in (31-40) years, 9.8% in (41-51) years, and 4.9% in age group of (51 yrs and above). Sixty percent TB/HIV co-infected belonged to the age group (31-40) years, 35.7% of subjects was belonged to age group (21-30) years.

Social demographic characteristic of the study population showed that proportion of PTB varied among the ethnic groups, it was high among MHC (39.4%) and HNC (39.4%) & TMC (13.6%) followed by TOC (4.5%) and HOC (3%). This study showed the proportion of PTB was high in hill native caste which included people of Mongolian origin such as Rai, Limbu, Magar, Tamang. Most of the study subjects were from Sunsari (51.7%), followed by Jhapa (30.2%) and Morang (18.2%) district. A low degree of migration was noted in this study, migration from terai district was 10.7% followed by hill district 10.3%. The reason behind migration

was found to be unemployment, education and travel.

The risk behaviors of the study population demonstrated that IDUs were 32.1%, spouse of HIV positive (housewife) 13.1%, CSWs 19.2%, clients of CSWs 28% and 4.1% truck drivers. Similar findings were observed by Dhungana GP et al study, which showed 39% Injecting Drug users (IDUs), 51% heterosexual activities and 6% homosexual. The reason for high burden of HIV among IDUs and their wife's might be sharing (exchange) of needles among them and infection might be transmitted to their spouse with unprotected sexual practice of migrated husbands.

Another important finding in case of inhabitation, 42.5% PTB were from Jhapa district whereas 25.6% from Sunsari and only 6.8% from Morang whereas out of total study population 51.7% were from Sunsari, 30.2% Jhapa and only 18.2% from Morang. The possible reason could be more vulnerable people of HIV (IV drugs users, drivers, CSWs) and low coverage of health program for early TB case finding in Jhapa district and might be neglected many HIV positives. The IDUs have more risk of TB infection many of them may suffering from malnutrition and weak immune-status, so they have a high chance of getting TB due to TB-HIV Co-infection.

CONCLUSION

Among the study population majority of them were male (75.2%) where 28.6% found PTB positive, around 50% were in age group 30-39 years of whom 29.7% were Pulmonary Tuberculosis. More than one third of the study population belonged to MHC and HNC. Majority (63.6%) of study population belonged to Hindu religion. Around 69% of subjects were migrated for job or work purpose. Majority (90.5%) of the subjects were literate, very few were illiterate. A large section (21.9%) of study population was skilled laborers and unemployed were 37.1%. The majority were married (55.4%).

This study reveals that PTB is significantly associated with increasing age, place of residence and high risk behaviors. Significant association is observed between PTB and marital status, knowledge of TB, contact with PTB and duration of HIV infection among risk group. There is significant association between PTB status and occupation, marital status and duration of HIV infection. There is an urgent need of screening program in the districts of eastern Nepal as well as periodic health check up program for early detection of tuberculosis and treatment. Following recommendations are made based on present finding:

1. This study has revealed the fact that PTB is the emerging health problem among HIV/AIDS cases. Therefore, the more detailed parameters and longitudinal studies need to be carried out in eastern region of Nepal.
2. Further case-control study is recommended to identify risk factors and behaviors among the subjects.

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BEHAVIOR AND HIV/STI SEROPREVALENCE SURVEY AMONG MIGRANT LABORS, THEIR WIVES AND OTHER WOMEN WITH STI SYNDROMES IN KANCHANPUR

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ABSTRACT

Introduction: Migrant people were high risk group in acquiring HIV and others STI. Nepal is facing rapid increase in prevalence among high-risk groups such as sex workers, injection drug users and migrants. Western part of Nepal faces the same threat. The objective of the study is to measure HIV/STI status in-migrant labors, their wives and women with STD syndromes in Kanchanpur.

Methodology: A cross-sectional analytical study was carried out in migrant labors, their wives and women with STD syndromes in year 2009 at Department of Microbiology, Siddhanath Science Campus, Mahendranagar, Kanchanpur.

Results: Out of 208 migrant workers, wife/husband of migrant workers, children of migrant workers 18(8.5 %) were found HIV positive and 40 (19%) had different STI. The HIV acquiring is highly associated with STIs co- infected patients ($p < 0.01$). Fifty-three (26%) respondents always used condom and 47 (23%) did not use. A large number 43(21%) had prostitute as sexual partner and majority of 130 (64%) were stricted to single sexual partner but 49 (24%) had 2 to 4 sexual partners and 24 (12%) had more than 4 sexual partners.

Conclusion: It was found that migrant people were at high risk of acquiring HIV and other STIs. Male migrants may engage in having sexual relationship with multiple partners. Adult migrant had HIV infection. The HIV infection was significantly associated with other STIs.

Key words: Migrants, High-risk groups, Sexual-contact, Kanchanpur

INTRODUCTION

AIDS (Acquired Immunodeficiency Syndrome), an infectious fatal disease caused by Human Immunodeficiency Virus (HIV) is spreading in an unpredictable rate causing huge human and socioeconomic loss.¹ Globally, an estimated 33.4 million (31.1million–35.8 million) people are

currently living with HIV according to UNAIDS. In 2008, an estimated 2.7 million (2.4 million–3.0 million) people were newly infected with HIV.² While the estimated number of PLHA in Nepal is more than 75,000, the recorded number, as reported by National centre of AIDS and STI control (NCASC), is 14,320 (as of July 2009).³

Among different high risk groups, the migrant labor constitutes the significant proportion in certain areas of Nepal, out of the total HIV cases in Nepal, 32, 341 (46%) seasonal labor migrant were estimated for HIV positive.⁴ Mobility or migration must not itself be a risk factor for HIV, but could create conditions and circumstances, that made the migrant workers

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vulnerable to HIV/AIDS. What these people have in common is that they work in low paid, unskilled jobs in hostile environment and their vulnerability rose from their need for company, intimacy and sex. *infection HI* In Nepal, 2 million male migrant workers regularly cross the border facilitating the spread of the virus, similarly thousands of migrant workers cross the borders from neighboring in search of work to Nepal.⁵ Currently, migration is one of the major social factors for the rapid spread of HIV in Nepal. Several bio- behavioral as well as HIV seroprevalance studies conducted in Far Western region of Nepal during different time intervals documented HIV prevalence of and inferred that this region was major hot spot of HIV population, mainly due to high rate of migration.⁶

STIs are among the top five disease categories and about one third of STIs globally occur among people younger than 25 years of age.⁷ It has been well established that women with STD syndromes are at higher risk of HIV infection. Firstly, the mode of infection of HIV and other STIs are same. Secondly, it is easier for HIV to enter and cause infection because of dysfunction of first line of defense mechanism (for e.g. ulceration of the skin). Moreover, its transmission is 3-9 times more in patients with STD syndromes as compared to general population.⁸

Based on these data it has been realized that migrant population, especially labor migrant to India was recognized with high degree of confidence. Hence, this study focused on this special population "Migrant labor" who are being at risk of the contracting and spreading this dreaded infection and disease HIV/AIDS. Kanchanpur's low economic status, illiteracy and high rate of migration along with the frequent unsafe practice with female sex workers in Indian cities make this population high vulnerable to acquiring HIV infection. So, the behavior and seroprevalence study in this population not only documents the exact prevalence of HIV seroprevalence and other STIs in this population but also help to control the transmission of HIV in general population through

provision of comprehensive care and support service in collaboration with other INGOs/hospitals located in this district. In Kanchanpur no specific study on the labor migrants is done to generate surveillance data regarding the different types of STIs including HIV/AIDS.

METHODOLOGY

This cross-sectional community based study was carried out by department of Microbiology, Shree Siddhanath Science Campus, Mahendranagar, Kanchanpur, during March to June 2009. Before the initiation of study ethical clearance was approved from the campus administration. The study was carried out on 208 patients who were self reported as migrant, their wives and others (belongs to migrant family). To make the sample more representative and community oriented, they were selected from different sites of Kanchanpur district: antiretroviral therapy centre of Mahakali Zonal Hospital, Nepal National Social Welfare Association (NNSWA) VCT center, HIV/AIDS camp at Jhalari VDC and Dodhara VDC. Migrant's people were enrolled in the study because they were highly vulnerable to HIV/STIs. Once the patients were identified, the verbal and written consent was taken from each patient. Then, a prestructured standard questionnaire was administered to each patient on the following topics: Sexual behavior and knowledge on HIV/STI transmission was reported. These data were kept confidential. Then, blood samples, cervical swabs, endocervical swabs from women and additional urethral swabs from male were collected. Privacy was strictly maintained during sample collection. The patients were selected for diagnosis of different STIs on the basis of vaginal discharge, pain in lower abdomen, chancre on genital organs and pus discharged from urethra. In case of STIs women were not eligible if they were pregnant, reported missed periods or had given birth in the previous six weeks, because of greater susceptibility to vaginal candidiasis at these times. On the day of examination, women were excluded if they were menstruating, because

menstrual blood would interfere with the laboratory tests. Unmarried girls were barred to speculum examination, because it was not deemed culturally appropriate for them.

The collected specimens were transported to Microbiology Laboratory, Siddhanath Science Campus, Kanchanpur and specimen processing was done as per standard Microbiological operating procedure for HIV testing and others STIs investigation.

The data generated from interview and lab investigation were entered into Statistical Package for Social Sciences 11.5 version and then analyzed to get the required information related to objectives of the study.

RESULTS

The study was carried out on 208 migrant, wives of migrant and others (belongs to migrant family) visiting to ART centre of Mahakali Zonal Hospital, Nepal National Social Welfare Association VCT center, HIV/AIDS camp at Jhalari VDC and Dodhara VDC (Table 1).

Table 1. Age and sex distribution of patients tested for HIV and others STIs

Age group	Male	Female	Total
0-14 years	1(2.5%)	2 (1.2%)	3(1.5%)
15-29 years	14(35.0%)	86(51.2%)	100(48%)
30-49 years	22(55.0%)	77(45.8%)	99(47.5%)
≥50 years	3(7.5%)	3(1.8%)	6(3%)
Total	40 (100%)	168(100%)	208(100%)

Out of 208 patients 40 (19%) were male and 168 (81%) were female. The highest numbers of population were in age group 15-29 years (48%). Similar to 30-49 yrs (47.5%). Followed by age group 30-49 years (47.5%). the average age were 30 years.

Table 2. Knowledge on HIV transmission (N= 208)

Mode of transmission	Correct answer	Incorrect answer	Do not know
Sexual contact	80 %	18%	2%
Infected syringe	73%	22%	5%
Blood	70%	23(%)	6%
Mother to baby	60%	26%	14%
Mosquito	8%	35%	57%
Kissing	47%	29%	24%
Normal contact	62%	18%	20%

Eighty percent patients knew that AIDS could be transmitted through the sexual contact followed by other corrected response like infected syringe 73%, blood 70%, and mother to baby 60%, kissing 47% and mosquito bite 8% (Table 2).

Table 3. Sexual Behavior of Studied Population (N=208)

Sexual behavior		Frequency
Use of Condom	Never use	104 (51%)
	Some times	47(23%)
	Always	53(26%)
Types of sexual partner	Friends	2(1%)
	Prostitute	43(21%)
	Others	10(5%)
No. of sexual partners	Only one	130(64%)
	2-4 partners	49(24%)
	> Four	25(12%)

Among 208 respondents, 3 were children and they did not have exposed to sex. Majority of 104 (51%) had never used condom. Fifty-three (26%) respondents always used condom and 47 (23%) did not use condom had visit to sex worker. A large number 43(21%) had prostitute as sexual partner. Two (1%) had sexual relationship with their friends and 10 (5%) had sexual relationship to others. Majority of 130(64%) were strict in single sexual partner. Forty-nine (24%) had 2 to 4 sexual partners and 24 (12%) had more than 4 sexual partners (Table 3).

Age group	Male	Female	Total
0-14 yrs	1(16.7%)	2(16.7%)	3(16.5%)
15-29 yrs	0(0)	3(25.0%)	3(16.5%)
30-49 yrs	4(66.6%)	7(58.4%)	11(61.5%)
≥50 yrs	1(16.7%)	0(0)	1(5.5%)
Total	6(100%)	12(100%)	18(100%)

Distribution of HIV sero-positive patients is shown in Table 4.

Types of STI	Positive cases
Syphilis : N=172	3(2%)
Gonorrhoea: N=104	0(0%)
Trichomonosis: N=104	10(10%)
Bacterial Vaginosis: N= 104	15(14%)
Candidiasis: N=99	23(23%)

Based on clinical finding 40 (19%) had different STI. The prevalence of vaginal candidiasis, bacterial vaginosis, trichomonosis and Syphilis was 23%, 14% 10%, 2% respectively, but none of cases was positive for gonorrhoea (Table 5).

HIV Status	STI Status			Chi-square value
	Positive	Negative	Total	
Positive	12	6	18	30.9 (P< 0.01)
Negative	26	164	190	
Total	38	170	208	

As the Chi-square value obtained by cross tabulating with HIV/ other STI co-infected patients is 30.9 (P< 0.01). The HIV acquiring is highly associated with STIs (Table 6).

DISCUSSION

The high proportions of migrants were 15-29 years age group and most of them were female. In contrast to our study findings, a study done on

Eastern Nepal; the average age of migrant workers were 22.5 years and majority of them were between 15-35 years of age.⁹ The large proportion of HIV positive population was 30-49 years in the study, the age group with the highest population was wives of migrant. This data suggest that most of the people of this region leave their home town to earn money as migrant laborers at this age. Male migrant may engage of having sexual relationship with multiple partners and prostitutes due to loneliness need for intimacy and sex. There they acquire HIV infection and transmit the infection to their innocent homemakers during their short visit to home. Other studies also documented that the people of this age group are more susceptibility to HIV infection. Data of National centre for AIDS and STD control (NCASC) shows that 77.6 % HIV positive people are in the age group 21-30.¹⁰ The large proportion of HIV positive population was 26- 35 years, the age group with the highest population was migrants. This indicates that though age is an important determinant of HIV infection, migration women is also crucial factor in the spread of HIV in all age groups.¹¹

This study found that migrant labor had good knowledge on HIV/AIDS. But a significant number had the misconception that one could contract HIV through mosquito bites and kissing. Almost 70% respondents fall under the categories of good knowledge, while only 15% respondents were ranked as poor knowledge. This finding was supported by study awareness and HIV risk behaviours among migrant workers in relation to HIV/AIDS- a study from eastern Nepal, in which also migrants were aware regarding the transmission of HIV/AIDS viz; unprotected sex (92.7%), unscreened blood (80.5%), infected syringe (75.6%). The commonest misconceptions were found to be; through mosquito bite (53.5%) and through normal contact were nearly 30%.¹²

Sexual behavior of patients increases the risk of HIV transmission. Highest proportion (51%) were never used condom, 47% used condoms but they ignored to use condom, when they had drunk

alcohol. which might made them transmission and acquiring of HIV. A large number 43(21%) had prostitute as sexual partner. Most of the male migrant frequently visited prostitute when they were in India. The practices of prostitute sex among male migrant was also interesting finding. They revealed one secret that they generally had unprotected sex with prostitute because they were alone (wife at home) for a long time in India and feel thought their wife and children then drunk alcohol visited prostitute for sexual satisfaction. One participant made a statement "Male migrant in India generally to gathered and drunk alcohol, then planed to visit prostitute and may had group sex." Female were strict within the single sex partner but few cases were involving in commercial sexual worker because they had already lost their husband.

Among HIV/AIDS other STIs co-infected patients, both male and female were found in equally infected. HIV/STI co- infected patients belong to above 30 years. Migrants aged 30 years or younger were greater risk of HIV infection than those who were older. Another study showed that HIV infected migrant women were significantly older (mean=34.4 years).

Table 4 and 6 presents, gender had no relation to acquiring HIV/ STIs ($p=0.105$). As the Chi-square value obtained by cross tabulating with HIV/ other STI co-infected patients is 30.9 ($P< 0.01$). The HIV acquiring is highly associated with STIs. STD syndromes were highly significant relation to acquiring HIV Infection. STIS increases the risk of acquiring HIV infection, HIV can easily pass through breaks in the skin caused by genital ulcers or it is transmitted in the same way as other STIs.¹¹

CONCLUSION

The result shows that migrant people are at high risk of infection. HIV infection was higher among aged 31 years, at this age people went to India for

earning and import HIV infection to their wife during their short visit to home. The HIV infection was significantly associated to curable STDs. Migrant people still confused about transmission of HIV/AIDS. The prevalence of HIV and curable STDs are alarmingly high and emphasize the urgent need for interventions aimed at combating the spread of HIV and STDs among women in general and migrant or wives of migrant in particular. Such interventions should address social and economic factors promoting the spread of HIV. There is an urgent need for provision of services to treat STDs, VCT services will be strengthened and strictly launched to migrant and their wives. Education and empowerment programmes are need that will promote condom use among migrants. In the longer term, steps must be taken to address the social and economic pressures that migrant face.

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A WIDENING GAP IN ECONOMIC CRISIS AND OPPORTUNITIES: A PERSPECTIVE OF MIGRATION AND HIV FROM DADELDHURA, FAR-WEST OF NEPAL

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ABSTRACT

Introduction: A cross-sectional study was undertaken to explore socio-economic conditions of inhabitants from Dadeldhura district in Far-West Nepal.

Methodology: The study examined chances of migration to India for earning, and then possible risks of HIV transmission in migrants.

Results: It was found that most of the respondents have insufficient food supplies, which led to a large number of economically productive populations to migrate India for earning. Although the level of knowledge on HIV/AIDS was high in the respondents, they also had several confusions. The cultural restrictions forbid them to talk about the issues related to sexuality or to acquire relevant information.

Conclusion: As an implication, they remained unaware of the threat of HIV transmission despite the fact that some of them engaged in unsafe sexual behaviours. Provisions of information through peer networks seem to be effective to promote safer sexual behaviors in migrant populations.

Key words: Nepal, Poverty, Migration, HIV, Awareness

INTRODUCTION

Various studies around the world have shown that migrant workers are at increased risk of HIV transmission.¹⁻⁵ Globally, 120 million people move from country to country or within their own country every year. Another 38 million migrants constitute the internal displaced people and refugees.³

Migration in both forms, internal and external is common in Nepal⁶ and it is higher in Far-Western Region than any other parts of the country.⁷⁻¹⁰ A total of 658337 Nepalese migrated to different countries during a period of 1981 to 1991 of which,

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68% migrated to different parts of India¹¹, and this figure is estimated to be reached to one million. People from both countries can cross the borders freely, because there is no any legal requirement for them to have a visa. There is a long tradition of migration between Nepal and India. Cultural and religious similarities have influenced a large number of Nepalese to migrate India.¹²

A significant proportion of Nepalese migrants who worked in India have been detected with HIV¹³, as they had had unsafe sex with brothel-based sex workers in India. A brothel-based survey conducted in Mumbai, India revealed that 50% sex workers were infected with HIV.⁹ In recent years, migration has been fuelled in the Far-Western districts of Nepal due to ongoing political conflicts.¹⁴ The objective of this study was to identify circumstances that lead to migrate the inhabitants of Dadeldhura to India and then identify their vulnerability to HIV transmission.

METHODOLOGY

The socio-economic factors were analysed to assess the level of the migration. Then, knowledge on HIV/AIDS and sexual behaviours of the migrant workers were explored. Altogether, 200 respondents were recruited randomly by using lottery methods from the record of households, which were prepared by the office of village development committees (VDCs). Six VDCs were included in this study of which four VDCs were in hilly regions, and two VDCs were from plain areas. There are three VDCs in plain areas, which cover half of the district's total populations. There are 20 VDCs and 1 municipality in the district. The household owners were targeted to interview, because of the fact that they would be able to provide the details about the members who migrated to India, and also how they manage family financially. A large proportion of the household owners were the male members (191/200) who were interviewed. Interestingly, most of them had their lived experiences of ever migrated to India.

The data collectors were recruited from local communities who were educated from higher secondary to university levels, and had some experiences in data collection with other organizations. Trainings were provided to them before commencing data collection. The respondents participated in the study voluntarily after reading the information sheet, which detailed the study. Their informed consents were obtained as they decided to participate in the study. Respondents privacy and confidentiality were strictly maintained, as all the questionnaires which included their personal information, were marked by codes. All the relevant issues, importance of this research and manner in which the research was conducted, were discussed with the District AIDS Coordination Committee, which is the top level authority on HIV/AIDS in the district. All collected data were entered into EPI INFO software and were analysed.

RESULTS

Socio-economic and demographic characteristics

The study included 200 respondents of which 191 were male and 9 were female. Mean age of the respondents were 31.27 years with standard deviations (S.D.) 9.5 years. By caste groups, 105 respondents were Chhetri, 54 Brahmin, 39 Sudra and 2 were Baisya. A large majority of the respondents 175/200 were married and rests were unmarried. By educational status, 145/200 respondents were literate ranging from just able to read and write to higher secondary and above, whereas, 55/200 respondents were illiterate. A large number of the respondents 145/200 were engaged in agricultural works, and others worked as labourers and owning small businesses, and of these, two respondents were students who engaged in seasonal migration too. Most of the respondents 109/200 belonged to joint families and rests had nuclear families. The mean numbers of household members were 7.85 and S.D. 3.67. Interestingly, the mean numbers of economically productive members who supported family with an income were 2.74, and S.D. 1.6.

The land ownership by the household was varied. For example, slightly more than three-fourth (n=158) households owned 20 ropani^I or less land, 15% (n=30) had up to 40 ropanis of land. Only 6 respondents had 41 to 80 ropani lands. One ropani land is equivalent to 508.74 square meters. The types of land vary from barren to fertile. Major foods cultivated were paddy, maize, wheat, mustard and millet. Slightly more than half of the households (n=106) found these cultivated foodstuffs in their land were just sufficient for three months. Only 9% (n=18) households out of 200 were able to satisfy their food supply throughout the year. On average, their food supplies were sufficient up to 4.06 months with S.D. 3.33.

Included all sources, income in Nepalese currency was less than 15000^{II} rupees for 20% of households. Rest of the households had above 15000 of income, ranging from 16000 to 30000 rupees by 36.5% households, 31000 to 45000 rupees by 27% households, and rest of the households had above 45000 rupees. The

^I 1 ropani land = 508.74 square meters

^{II} 1 US\$=70.60 Nepalese rupees

primary sources of these incomes were agriculture, migration, business and a small proportion of the respondents had varied occupations. Most of the households spend their major proportion (94.5%) of incomes on essential commodities, such as foods and clothes. The second priority is celebration of festivals by 4% of households, whereas, medication and education of siblings appear to be the least prioritized areas for their expenditures. A little over three-fourth (76.5%) households in this study face much difficulty to cope with their family expenses. For example, 41.5% households take loan to fulfill their essential needs, such as foods and clothes, and 35% households rely on daily wage labour for which most of the families send their members to India for earning.

Migration to India

Fifty-five percents respondents (110/200) had experiences of ever being on migration to India where they stayed for 4.5 mean years and 3 years SD. Ninety-nine percents of these respondents who were migrated to India earned from rupees 500 to 4000 per month. Nearly 90% (97/110) of respondents spent their earning on food supplies for their family. This supports the fact that fulfillment of food supplies for the families is a compelling reason for migrating to India. The findings suggest that 95% people migrate to India from October to December. The major destination for the respondents were Delhi (35/110), Punjab (32/110), Mumbai (25/110) and other cities in small numbers. A large proportion (35.5%) of 110 migrant workers engaged in factory work, whereas, other majority (31.8%) worked as gatekeepers, and the remaining migrants were classified as hotel workers, porters, transport workers, and agricultural workers.

Knowledge and risk behaviours associated to HIV/AIDS

A large proportion (87.3%) of the respondents (96/110), who gave a history of being on migration, had heard of HIV/AIDS. Nearly 46% of the respondents (44/96) revealed that radio was the popular source for them to acquire information on HIV/AIDS, followed by 28.1% respondents (27/96) who claimed that they received information

from their friends. Other sources stated by a small number of respondents were magazine, teacher, hording board/poster, and television. Approximately fifty-eight percents (55/96) of the respondents perceived AIDS as a fatal disease and nearly 38% respondents conceptualized that AIDS is a disease which is transmitted due to having unsafe sex. A small proportion of the respondents perceived AIDS equal to STD, and some revealed that it is transmitted through casual contacts. The level of awareness regarding the modes of HIV transmission was varied among respondents. For example, a little over 59% respondents (65/110) mentioned four correct ways of HIV transmission, whereas, 24.5% and 12.73% respondents stated three and two correct ways of HIV transmission respectively. To protect oneself from HIV transmission, approximately two-thirds of the respondents (71/100) stated that one should have sex only with their husband or wife, whereas nearly 17% (18/110) respondents revealed that condom should be used while having sex with other than the spouse. Other small proportions of the respondents said that sharing of needles (7.27%), and transfusion of unchecked blood (by 3.64% respondents) should be avoided. Although these findings suggest a high level of knowledge among respondents, it is also true that many respondents have confusions regarding the knowledge about HIV/AIDS. For instance, 36.4% (40/110), 37.3% (41/110), 40.9% (45/110), 53.6% (59/110) and 41.8% (46/110) respondents believe that HIV can be transmitted through handshake, hugging, sharing clothes, mosquito bites and sharing toilets respectively while these questions were asked separately. These beliefs were common even in the respondents who were educated to some extent. While exploring the advantages of condom usage, approximately 93% (88/95) respondents stated that condom is useful to protect from HIV transmission through sexual intercourse. Other advantages of condom use as revealed by a small proportion of respondents were birth spacing and protection from STDs.

While trying to examine condom use and premarital and extramarital sexual relationships, 41.5% (27/65) respondents had sex with other than their spouses and nearly 31% (20/65) used condoms.

Overall, the condom use was claimed by 63.1% (41/65) respondents, whereas, other 36.9% (24/65) respondents never used a condom. However, the responses given by a small number of respondents suggest that only 4 respondents out of 24 used condom correctly. Those who did not use condoms stated that they were shy to ask for the condoms (9/12) and other responses were being unaware of the condoms, condoms not available, and condom makes sex unpleasant. Most of the male migrant workers had sex with female sex workers which ranged from 1 to 12. The sexual partners for female respondents were army/police, transport workers and male migrant workers.

DISCUSSION

The findings suggest that most of the households do not have secured food supplies for longer duration or at least for one year. Having no opportunities or means for earning in their hometown or district, many inhabitants are obliged to migrate India. While being distant from spouses and family members, some migrant workers seem to be having unsafe sex with prostitutes which place them at the risk of acquiring HIV and STDs, and then these infections are passed to their spouses and sexual partners. This finding is consistent with other study.⁷

The level of knowledge regarding HIV transmission and protection seem to be high, which may be as a result of ongoing HIV/AIDS intervention in the district and preventive messages disseminated through local medias. However, confusion exists among the respondents. It is also apparent that many respondents do not feel comfortable to discuss issues associated with sexual behaviours due to social stigma and taboos. As a result, their questions and confusions remain unanswered.

A feasible approach would be to disseminate information to potential migrants as to how to avoid HIV transmission, and places where to seek information and services. A peer education network would be effective to disseminate messages as per the personal needs of the migrant. They usually migrate India in their group. Furthermore, educational materials and devices such as condom should be provided at the immigration points. Also

it is crucial that the organizations, which work for the minimization of HIV transmission in migrant populations should network with existing agencies, that work at the place of destinations (in India). These organizations will be a major support to seek information and services at the place of destinations. Advocacy by the local organizations and civil society would be cornerstone to attract political response on the issue of migrants' health.

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PRIORITIZATION OF RESEARCH UNDER NATIONAL AIDS CONTROL PROGRAMME IN INDIA USING NOMINAL GROUP TECHNIQUE

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ABSTRACT

Introduction: During the first 2 years of the five year plan of India's National AIDS Control Programme Phase-III (NACP-III; 2007-12), various interactive consultative workshops were organized in collaboration with development partners with the objective of identifying priority areas for operational research and further development of research protocols adopting mentorship approach.

Methodology: This article is an attempt to present the Nominal Group Technique (NGT) which was used to identify a set of fundable and practically feasible research priorities under NACP-III specifically focusing on Prevention of Parent to Child Transmission (PPTCT) and Pediatric HIV Care in India. The activity was undertaken with support of UNICEF in the year 2010. A total of 110 persons participated in the consultation clustering into 37, 36 and 37 members in Group A, B and C, respectively. The participants reflected the mix of policy makers / decision makers (8), programme managers (12), implementers (36), subject experts / researchers (28), other stakeholders (16).

Results: A total of nine highest priority research questions were identified by all the groups in the assigned themes. The value of Kendall's W coefficient of concordance was 0.68, which shows significant agreement among raters on priority research questions (chi-square=16.35; p=0.03).

Conclusion: Based on our experience, we can conclude that NGT was found to be an important tool for setting research priorities that is more democratic and transparent than the traditional methods. By applying various stages of the group sessions, participants can experience the rethinking process with reference information to enhance their judgment. The results of our experience may help programme managers / policy makers to plan similar and more improved method in other element of NACP as well as other health programmes.

Key words: Research, HIV/AIDS, Nominal group technique, India

INTRODUCTION

During the India's National AIDS Control Programme¹ phase I (1992-1999) and phase II (1999-2006), a number of regional and national level studies, assessments, surveys, operational, biomedical and laboratory research were conducted.^{2,3} These studies and surveys have

contributed to better understand the dynamics of the HIV epidemic⁴. However, issues of quality research and knowledge translation continued to be of concern specifically due to inadequate documentation and dissemination practice. The lessons learnt from the experience of NACP- I and NACP-II, led to an agreement on the goal, objectives and strategies for National AIDS Control Programme Phase III (NACP-III; 2007-12).² Under NACP-III, several new initiatives have been taken to scale-up HIV research with emphasis on multi-disciplinary themes, improved research quality, expanded partnerships, utilization of research based knowledge, relevant context specific indicators for tracking the epidemic. Some of the

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initiatives were system development; research prioritization, dissemination strategies, constitution of Network of Indian Institutions for HIV/AIDS Research, fellowship scheme and capacity building initiatives. Government of India recognized that the magnitude of the response to HIV epidemic in India cannot be managed centrally and therefore under NACP- III, programme implementation was decentralized to District and Sub District levels. Thus there is now concern for priority setting process to get more representative evidences for decision makers, which is an important and essential approach for understanding the problem and optimal resource allocation.

In India, lack of emphasis has been observed on research, specifically Operational Research (OR), because there is uncertainty on how to conduct it; what kinds of evidence can and should be used to determine whether HIV prevention programs and interventions really work? How do we best drive evidence? etc.⁴ Literature suggests^{3,4,5} that research should not necessarily be viewed separate from programming, it should be included in programme design, planning, monitoring and evaluation. If it is included in an early stage, it becomes clear why it will be needed, what the scope of the research will be and what would be the logistical requirements? Having selected high level strategies to prioritize and target resources, research will help in selection of the appropriate types and mixes of specific interventions and service modalities.^{6,7} It is well recognized that the collaboration of researchers and decision makers from prioritizing and planning of research to dissemination can strongly affect an impact of a single study.⁸⁻¹⁰ During the first 2 years of the five year plan of NACP-III, various interactive consultative workshops were organized in collaboration with development partners (e.g. UNICEF / UNAIDS / CDC) with the objective of identifying priority areas for operational research under NACP-III and further development of research protocols adopting mentorship approach.

This article is an attempt to present the Nominal Group Technique (NGT)¹¹ which was used to identify a set of fundable and practically feasible research priorities focusing on Prevention of Parent to Child

Transmission (PPTCT) and Pediatric HIV Care of India's NACP-III. The process was undertaken with support from UNICEF in the year 2010.

METHODOLOGY

Categorization of topics

Beyond the general classification¹¹, research in the HIV/AIDS domain under NACP-III was divided into two main categories: 1) prevention of HIV transmission and, 2) mitigation of the effects of HIV/AIDS, as summarized in Table-1. The first category focuses on the full range of policies and programs directed in preventing HIV transmission, whereas the second category focuses on a range of program activities directed in reducing the impact of HIV/AIDS including treatment, care and support. In these two categories, we sought potential research topics from all the programme divisions during the first year of the NACP-III. We requested programme head of every division to suggest programme / knowledge gaps concerned to their programme. They were encouraged discussion among their division with their junior staff as well as implementation partners to identify atleast programme gaps. The programme / knowledge gaps were collected anonymous and so reminders to non-respondents could not be sent. However, we sent reminders to the divisional heads to provide the information as per the stipulated time period.

Table 1. Key strategies and program elements of India's National AIDS Control Programme, Phase III

Program Area	Key Program Elements
HIV Prevention	<ul style="list-style-type: none"> • Targeted interventions for High Risk Groups and Bridge Populations • Management of STI/RTI • Condom programming • Blood Safety • Integrated Counseling and Testing Centres • Post-exposure Prophylaxis • Prevention of Parent-to-Child Transmission • Information Education and Communication

Table 1. Continuous

HIV/AIDS Mitigation	<ul style="list-style-type: none"> • Anti-retroviral Therapy • Management of Opportunistic Infections (OIs) • Community care and Home-based support • Advocacy and stigma reduction
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The collected information from all programme heads was compiled broadly in above mentioned two main categories. Incomplete sentences and duplicate areas / gaps were excluded from the frame. Finally, 48 most frequently suggested programme / knowledge gaps were selected and are listed in Box-1. Based on the consensus of the donors, programme managers / policy makers, following three themes on PPTCT and Pediatric HIV care were identified from the list (Box-1) for research prioritization through NGT:

- (1) PPTCT program effectiveness and coverage
- (2) Pediatrics HIV Care and Treatment
- (3) Convergence of PPTCT and Pediatrics HIV Care with the National Rural Health Mission (NRHM)¹³ / Reproductive and Child Health (RCH).¹⁴

Composition of Nominal Group

The NGT is a structured form of brainstorming in which several people are organized to work as a team to resolve a problem. Within the group work, sharing of ideas promotes a sense of involvement and motivation.¹⁵

The composition of the nominal group was intended to reflect the diversity in the consultation process. The criteria for selection required that the participant should have (1) at least three years of experience as programme managers / decision makers in PPTCT and Paediatric HIV care programme, (2) recognition as an expert in the relevant field, (3) involvement in the implementation of the concerned element of the programme. The selection criteria were defined to ensure that the questions addressed during the consultation were properly considered and resolved. Hence, the participants were selected from a population of policy makers / decision makers, programme

managers, implementers, subject experts / researchers and other stakeholders.

Nominal Group Process

Based on the pre-determined themes, the participants were arranged into following 3 groups for interactive deliberations: Group A on PPTCT Program Effectiveness and Coverage; Group B on Pediatrics HIV Care and Treatment; and Group C on convergence of PPTCT and Pediatrics HIV Care with the NRHM/RCH and health system issues. Each group consisted of (1) a group leader, who was responsible for ensuring that the discussion remains focused on achieving consensus on the priority research questions; (2) a rapporteur who was responsible for documenting the technical summary of the group work discussion and conclusions; (3) members, who contributed in the discussion based on their knowledge and experience. The purpose of the group work was to discuss the program gaps and frame questions that group considered to be the most crucial for addressing the gaps in the assigned theme.

To make the best use of the allotted time to accomplish the output goals, it was important that the group stayed focused on identifying the key research questions needed to address the gaps in knowledge / programme rather than spending a lot of time discussing the programmatic challenges. Hence, the group sessions were divided into four stages. During the first stage, groups were asked to brainstorm on the assigned theme addressing three key questions; (1) what are the five highest priority OR for addressing key gaps in the group’s assigned area?; (2) for each of the five questions chosen, a brief rationale for why the group selected these as the most crucial OR priorities; (3) for each of the five questions chosen, outlined the potential research design and data sources.

At second stage, each member within the group was asked to indicate their level of support to each of the identified research questions / areas individually using likert scale of 1 to 9 (1=no support, 5=moderate support, 9=strong support) so as to get the group’s ranking, an attempt to reach

a group consensus. The members were under no pressure to achieve consensus.

At third stage, each group leader had presented brief overview of the exercise and displayed their priority research questions to other group members using the power-point template for about 20 minutes. Each group had also given the rationale of identifying the particular research questions as priority. Thus, a total of 25 priority research questions were identified by all the groups in the assigned theme. Participants were allowed to express their disagreements with adequate reasons at the end of the presentation. Assuming that full consensus was not achieved, voting was used to obtain majority views considering six parameters: (1) Can the questions be answered through well designed and conducted OR? (2) Would the OR study needed to answer the question be feasible within the current ethical, population and financial environment (logically, financially, timely)? (3) Will answering the research question add significantly to the PPTCT and Pediatrics HIV care knowledge base? (4) Will answers to the research questions be relevant, useful and generalizable to the national efforts to scale up PPTCT and Pediatrics HIV care? (5) Will answering the OR question have a large impact on the epidemic and/or the survival of the HIV infected population? (6) Will it be feasible to rapidly and widely implement the results of the OR study needed to address the research questions (Logistically, financially, and timely)? Voting was done using the four-point scale (1= not likely to fulfill the criteria; 2= may possibly fulfill the criteria; 3= likely to full fill the criteria; 4= certainly fulfill the criteria) through self elimination method. The technique was carried out in a group session that lasted on an average 90 minutes. The voting was made anonymous to maintain confidentiality with no pressure.

At final stage, the scores given by all the participants were analyzed and presented to categorize the highest priority research questions that emerged through NGT in the consultation.

Data Analysis

For each identified research questions, the individual ranks from participants were collated and the scores were indicated by the mean values. The research question scoring the lowest mean value was considered as the least priority areas, while the one scoring the largest mean value was taken as the most priority areas. Kendall's W coefficient of concordance¹⁶ was applied, which is a measure of agreement among raters. Kendall's W ranges are between zero (no agreement) and one (complete agreement). Statistical analysis was performed using SPSS 16.0

RESULTS

Of the 115 people invited, 6 declined to participate (3 of which were replaced) and 2 refused to attend on very first day of the consultation. Finally, a total of 110 people participated in the consultation clustering into 37, 36 and 37 members in Group A, B and C, respectively. The participants reflected the mix of policy makers / decision makers (8), programme managers (12), implementers (36), subject experts / researchers (28), other stakeholders (16).

At the first stage of the group sessions, participants of each group had initially discussed knowledge / programme gaps, priority research questions addressing these gaps on assigned theme. Some of the examples of the outcome of the discussion from each group are given in the Table 2.

Table 2. Examples of Programme / Knowledge gaps and Priority Research Questions on PPTCT and Pediatric HIV care and treatment in India.	
Programme / Knowledge gap	Priority Research Questions
Group-A: PPTCT Program Effectiveness and Coverage	
All ANC cases are not counseled and tested for HIV.	What are facilitating and inhibiting factors in counseling and testing for HIV during ANC?
Increase in Institutional delivery does not commensurate with PPTCT scale-up.	What are the determinants of not providing anti-retroviral prophylaxis to HIV positive mothers opting for Institutional delivery?
Group-B: Pediatrics HIV Care and Treatment	
Access to Pediatric ART services are inadequate	How to make Pediatric HIV services accessible & child friendly to all Children living with HIV (CLHIV)?
Poor follow-up of HIV exposed child (HEC)	What are the reasons and possible actions required for follow-up of HEC?
Group-C: Convergence of PPTCT and Pediatrics HIV Care with the NRHM/RCH and health system issues	
Huge gap between HIV diagnosis and ART prophylaxis.	Will utilization of service providers of NRHM / RCH improve the uptake of PPTCT? How to increase access to ART Prophylaxis and Treatment by HIV+ pregnant women?
Limited involvement of Private Sector in PPTCT and Pediatric Care	Have the existing Public Private Partnership models (Yeshswini and Chiranjeevi) been effective in coverage and quality of the PPTCT services

During the second stage, identified research questions were ranked within the group to reach out to the consensus. A total of 25 priority research questions were identified during the consultation based on the mean rank. These 25 questions were further summarized into broad 5 areas: (1) access to PPTCT, (2) strategy to increase PPTCT uptake, (3) follow up and care of HIV exposed children, (4) nutritional care of HIV exposed children or CLHIV and Private sector participation. Some of the examples are given in Table 3. Key priority areas/research questions suggested by programme officials under NACP-III are given in box 1.

Table 3. Examples of Priority Research Areas identified through 2nd Stage of NGT	
Research Areas	Priority Research Questions
Access to PPTCT	<ol style="list-style-type: none"> 1. What are the various factors that impact on HIV positive mothers accessing the range of PPTCT services, 2. What are facilitating and inhibiting factors in counselling and testing for HIV during ANC? 3. How to increase access to ART Prophylaxis & Treatment by HIV+ pregnant women?
Strategy to increase PPTCT uptake	<ol style="list-style-type: none"> 4. Is single window service delivery system feasible for HIV positive mothers and their exposed children? 5. What are the communication needs in the context of clinical settings where PMTCT services are delivered/accessed? 6. Will utilization of service providers of NRHM / RCH improve the uptake of PPTCT?
Follow-up and care of HIV Exposed Children (HEC)	<ol style="list-style-type: none"> 7. How to improve Follow up of HIV exposed children? 8. How to make Infant feeding practices safe for HEC? 9. How can convergence between Paediatric health services (e.g. immunization) help in tracking and follow up of exposed children? 10. Can HIV-IMNCI increase the coverage of tracking of exposed child, and Paediatric HIV care? 11. What are the barriers/issues for the exposed child, in accessing the services?
Nutrition of CLHIV/HEC	<ol style="list-style-type: none"> 12. How to improve Nutritional status among CLHIV? 13. How to make Infant feeding practices safe for HEC?
Private sector participation	<ol style="list-style-type: none"> 14. Have the existing PPP models (Yeshswini and Chiranjeevi) been effective in coverage and quality of the PPTCT services?

At the final stage of the consultation, 9 out of these 25 research priority areas topped based on the mean rank. The mean rank given by three groups to the 9 highest priority research questions is shown in Table 4. The value of Kendall's W coefficient of concordance was 0.68, which shows significant agreement among raters on priority research questions (chi-square=16.35; p=0.03).

Table 4. Group-wise Mean Rank of Priority Research Questions using Kendall's W test						
Priority Research Question	Group A (N=39)		Group B (N=36)		Group C (N=37)	
	<i>Mean Rank</i>	<i>Rank</i>	<i>Mean Rank</i>	<i>Rank</i>	<i>Mean Rank</i>	<i>Rank</i>
What are the various factors that impact on HIV positive mothers accessing the range of PPTCT services?	3.19	8	3.26	8	3.34	8
What are facilitating and inhibiting factors in counseling and testing for HIV during ANC?	2.54	6	2.78	6	3.28	7
How to make Infant feeding practices safe for HIV exposed children?	2.42	5	2.66	3	3.00	2
Is single window service delivery system feasible for HIV positive mothers and their exposed children?	2.58	7	2.63	2	3.18	4
How to improve Follow up of HIV exposed children?	2.33	4	2.67	4	3.22	6
Will utilization of service providers of NRHM / RCH improve the uptake of PPTCT?	2.03	2	2.74	5	3.21	5
How to improve Nutritional status among CLHIV?	1.77	0	2.94	7	3.10	3
How can convergence between Paediatric health services (e.g. immunization) help in tracking and follow up of exposed children?	2.07	3	2.44	0	2.10	0
What are the communication needs in the context of clinical settings where PMTCT services are delivered/ accessed?	1.99	1	2.55	1	2.50	1
Kendall's W test	0.68					
Chi-square	16.35					
Asymp. Sig.	0.03					

Box 1. Key Priority Areas / Research Questions Suggested by Programme Officials under NACP-III

1. Health care seeking behaviour and treatment literacy in High Risk Groups (HRG).
2. Determinants of high risk behaviours of different vulnerable groups and hard to reach population.
3. Impact Assessment of Targeted Intervention Programme.
4. Cost-effective and cost-benefit analysis of Interventions.
5. Understanding sexual networks of migrants and vulnerabilities at the source as well as destination sites.
6. Profile and quality of counselors of ICTC.
7. Factors affecting acceptance of HIV testing by various groups including ANC cases.
8. Estimation of CD4 count of newly detected HIV positive person in the ICTC.
9. Assessment of CD4 status of newly detected HIV positive mothers in the PPTCT centers.
10. Evaluation of impact of PPTCT intervention in terms of HIV transmission to new born.
11. Barriers and uptake of Integrated Counseling and Testing Center (ICTC) services by HRGs/pregnant women
12. Strategy to increase PPTCT uptake.
13. A community based study for understanding the load of Sexual / Reproductive Transmitted Infections (STI/RTI).
14. Impact of PPP scheme in reducing the STI load in the community.
15. Cost-effectiveness and monitoring types of providers.
16. Efficacy of syndromic management of common STIs.
17. Factors affecting treatment seeking behaviour for STIs.
18. Drug resistance towards common STIs.
19. Community based rapid assessment of STIs in general population/HRGs.
20. Socio-demographic and clinical profile of HIV-TB co-infected person.
21. Study on Knowledge Attitude and Practices of New Prevention Technologies.
22. Role of community based outreach workers.
23. In-depth study on condom usage in different situations (regular *versus* casual partners).
24. Psychosocial and Mental morbidity among People Living With HIV/AIDS (PLHA).
25. Communication Needs Assessment for PLHAs and HRGs.
26. Reach and Effectiveness of Information Education and Communication (IEC).
27. Content analysis of the IEC material.
28. Impact evaluation of needle-syringe program.
29. Adherence to ART in injecting drug users.
30. Determinants of HIV infection among new and old Injecting Drug Users in North Eastern states of India
31. Determinants of initiation of drug use of women and effect of drug use on women and families.
32. Dynamics of HIV transmission in injecting drug users.
33. Changes in profile of drug users and drug use behavior.
34. Transitioning from non-injecting to injecting drug use.
35. Efficacy of thrice weekly ATT for HIV-TB patients.
36. Determinants of ARV Drug Adherence in India.
37. Factors affecting enrollment of PLHAs on ART.
38. Quality of services given by counselors of ART.
39. Efficacy and drug resistance of single dose NVP in PMTCT.
40. Process Evaluation of Link ART centres and Community Care Centers.
41. Reference ranges for CD4 T-cell counts in adult Indian population.
42. Impact Assessment of Home based care and support services.
43. ART survival and Quality of life.
44. Reasons for default among pre ART and ART patients
45. Review of organizational capacity of NACO and State AIDS Control Society (SACS).
46. Models for integration of HIV/AIDS related activities with National Rural Health Mission and how effective the integration would be.
47. Decentralized Management in scaling-up and Sustaining HIV/AIDS prevention, care, and treatment services
48. Population based study on HIV prevalence

DISCUSSION

The probability of success of a research plan is greatly enhanced when the "beginning" is correctly defined as a precise statement of goals and justification. Having accomplished this, the sequential steps necessary for developing a research plan makes research execution easier to organize^{17,18}. The consultative process makes research hugely valuable to the programme planners and policy makers. It can help in understanding problems/gaps more clearly to develop better strategies for dealing with them¹⁹. Considering the above, NACO in alliance with development partners organized a series of consultative workshops from prioritization of research to knowledge translation so as to generate evidences for programme development and policy formulation.

Research based on the programme gaps and ending in action will most likely assure a successful planning and policy making. Since this article sought to explore the application of the sequential stages of NGT in identifying problems and setting research priorities, this technique appears to be a useful methodological approach as found elsewhere.^{20,21,22} This technique was found to be an important tool for setting research priorities that is more democratic and non-hierarchical than the traditional methods. It allows free exchange of opinions and generation of ideas. Face to face dialogues between the multi-skilled team of researchers / subject experts, implementers, programme managers and policy makers was enormously productive. Participants had adequate opportunities during various stages of NGT and active participation during the final discussion session before voting. It could be possible that individual opinions prior to voting might have changed and leading to higher level of agreement. On the other hand, studies that have the widespread support of the funders are more likely to gain cooperation and participation in their execution and may increase the likelihood of any research findings being taken up for policy change.

As noted earlier, the NGT consisted of four steps namely: simple ranking, discussion, voting and comparison of results / agreements of raters.

Although the ranking provides a rough indication of the priority areas, it may not provide the rationale of prioritizing the area. However, during the first stage of group session, we tried to capture the rationale of identification of the programme / knowledge gaps in the priority frame. During the planning stage of NGT, we also made the provision to outline the research design on the identified priority research questions. However, due to limited time period and inadequate representation of experts from statistics/biostatistics and demography disciplines, the groups could not attempt research design. Despite the fact that many stages are involved, this technique uses less time than other types of methods.²³

To take up the outcome of the process forward, the group recommended the constitution of working groups for each of the respective highest priority research questions to develop detailed proposals. It was found that among the highest priority research questions; there are two different kinds of studies: (1) short term studies, which can influence the implementation of the current phase of NACP strategies, (2) longer term studies, which can influence the formulation of next phase of NACP. Long term plans are usually for 5 year period and coincide with 5-year development plans. India's 11th Five-Year Development Plan is ending in March 2012 and 12th Plan will begin in April 2012 and end in March 2017. Research studies planned in advance help in producing evidence that goes into 5 year planning cycle.

CONCLUSION

Based on our experience, we can conclude that NGT was found to be an important tool for setting research priorities that is more democratic and transparent than the traditional methods. By applying various stages of the group sessions, participants can experience the rethinking process with reference information to enhance their judgment. The results of our experience may help programme managers / policy makers to plan similar and more improved method in other element of NACP for e.g. Targeted Interventions for High Risk Groups as well as other health programmes.

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PANEL TESTING OF SPUTUM SMEAR MICROSCOPY OF NATIONAL TUBERCULOSIS REFERENCE LABORATORIES IN SAARC REGION: 2003-2010

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ABSTRACT

Introduction: Quality assured sputum smear microscopy is a priority for Tuberculosis Control Programme to be successful to meet the global TB targets of 70% case detection and 85% treatment success rate. The SAARC TB Reference Laboratory has been conducting Panel Testing under External Quality Assurance Sputum Smear Microscopy for National TB Reference Laboratories of SAARC Member States to strengthen the Sputum Smear Microscopy. The study aims to review and analyse the Panel Testing for National Reference Laboratories of SAARC Member States.

Methodology: The reports of seven rounds (2003-2010) of Panel Tests were collected and data from these reports was compiled and analysed.

Results: Seven rounds of Panel Testing in the region have been completed since 2003 and ten TB Reference Laboratories within eight Member States participated. Afghanistan has been participating since 2007. Seven hundred and seventy-eight panel test slides were dispatched to and read by the participating laboratories and percentage agreement was 98.07%. Percentage agreement of individual participating laboratories varied from 87.50 to 100%. Fourteen minor errors and one major error (high false positive) were also observed with sensitivity and specificity ranging from 90.90 to 100% and 83.33 to 100%, respectively.

Conclusion: Panel Testing within the SAARC TB Laboratory network is extremely doing well. The success of TB control programmes in the SAARC Member States is reflected by the excellent Panel Testing within the SAARC TB Laboratory Network. Continuation and improvement of External Quality Assurance of Sputum Smear Microscopy, introduction of External Quality Assurance of culture & drug susceptibility testing along with the introduction of recent diagnostic tests within the region is necessary to fight against TB.

Key words: Tuberculosis, Panel testing of sputum smear microscopy, SAARC TB reference laboratory network.

INTRODUCTION

TB is one of the major public health problems in the SAARC Region with immense socio-economic impacts. India, Bangladesh, Pakistan and Afghanistan are among 22 high-burden countries.¹ Almost 50% the adult population of this Region

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has already been infected with *Mycobacterium tuberculosis* and is at risk of developing tuberculosis disease. In the year 2009, a total of 2.0 million of all types of TB cases were notified in the SAARC region. This represents 74.07 % of the 2.7 million estimated incident cases; the 0.8 million new smear positive cases notified account for 71.9 % of the 1.2 million estimates. The SAARC region carries 28.7% of the global burden of TB.

By adopting DOTS strategy, the Region has made remarkable progress in TB control. In the

year 2008, SAARC Region covered 100% of its population under DOTS strategy. The Region has already achieved the target of 85% (now 88%) treatment success rate and the target of 70.0% (now 71.9%) case detection rate.¹

The World Health Organization (WHO) Stop TB strategy for tuberculosis control (DOTS) relies on a network of laboratories that provide acid fast bacilli (AFB) microscopy.¹ SAARC TB Reference Laboratory (STLR) and ten other National TB Reference Laboratories (NRLs), two each from India and Pakistan and one each from other Member States the SAARC TB Laboratory network. One of the objectives of SAARC TB and HIV/AIDS Centre (STAC) is strengthening laboratory network & improving External Quality Assessment (EQA) and supervision.²

STRL at STAC is regularly supporting 10 National TB Reference Laboratories (NRLs) in 8 Member States in the area of quality assurance in sputum smear microscopy. Panel Testing-one of the three components for external quality assessment (EQA) or proficiency testing has been used to assure the quality of sputum smear microscopy services since 2003.^{3,4} So far, seven rounds of proficiency testing have been completed and eighth round is ongoing. This study aims to analyse seven rounds of proficiency tests for sputum smear microscopy within the network of National TB reference Laboratory of the SAARC region beginning from 2003 to 2010.

METHODOLOGY

The reports of seven rounds of proficiency tests were collected and data from these reports were compiled.^{2,5-10} The parameters that were studied were; number of Member States participated, number of slides included in each rounds, number of slides read and number of errors reported. The indicators of quality assessment of sputum smear microscopy were also calculated and the performance was analysed. The criteria of performance of the regional Panel Testing was interpreted as; >95%=Excellent,

90-95%=Satisfactory and <90%=poor. Although, quantification error is considered as minor error in Panel Testing, it was taken as acceptable result for calculation of indicators in this analysis.

RESULTS

On behalf of STRL, National Tuberculosis Institute (NTI), Bangalore, India conducted the 1st round of Panel Testing in 2003. NTI prepared the Panel Tests slides and were dispatched to seven NRLs including STRL which was also one of the participants. Since 2004 STRL is regularly conducting Panel Testing. Seventh round has been completed so far and eighth round is ongoing. Out of 10 NRLs in eight Member States that participated are currently participating in Panel testing, NTI and Tuberculosis Research Centre (TRC), Chennai, India participated since 2004 (2nd round) and Afghanistan participated in 2007 (4th round). The panel tests slides were prepared as per the guidelines "External Quality Assessment for AFB Smear Microscopy" and reported using "WHO/IUTALD" criteria for reporting AFB smear microscopy.

Number of panel slides received by all participating laboratories were 25 during the first round except for National Tuberculosis Reference Laboratory, Bangladesh, which received 23 slides and all laboratories are receiving 10 panel test slides from 2nd round. Under panel Testing, out of the slides sent, five slides are stained and five are unstained. The positive and negative slides vary from round to round.

So far STRL has dispatched 778 panel test slides and correct results have been obtained for 763 slides (Table 1). The percentage agreement was 98.07%. Out of 15 incorrect results, 8, 2, 1, and 4 represented low false negative, low false positive, high false positive and quantification error, respectively (Table 1). STLR received 25 panel test slides and there were no errors reported. Since its participation in 2007 (4th round), TB Reference Laboratory of Afghanistan has reported 40 slides with 5 incorrect results (3, 1 and 1 are LFN, LFP and HFP results, respectively).

Table 1. Statistics of External Quality Assessment for Sputum Smear Microscopy in SAARC Laboratory Network

Country, Lab	Year of participation	Participation in round	No. of slides	No. of correct result	No. of incorrect/acceptable result (type)
STRL	2003	1	25	25	-
Afghanistan	2007-2010	4-7	40	35	5 (3, LFN; 1, LFP; 1, HFP)
Bangladesh	2003-2010	1-7	83	83	-
Bhutan	2003-2010	1-7	85	84	1 (QE)
India, NTI	2004-2010	2-7	60	59	1 (QE)
India, TRC	2004-2010	2-7	60	60	-
Maldives	2003-2010	1-7	85	82	3 (1, LFN; 2, QE)
Nepal	2003-2010	1-7	85	85	-
Pakistan, OICD	2003-2010	1-7	85	83	2 (1, LFN; 2, LFP)
Pakistan, FTC	2003-2010	1-7	85	84	1 (LFN)
Sri Lanka	2003-2010	1-7	85	83	2 (LFN)
Total			778	763	15

STRL, SAARC Tuberculosis Reference Laboratory; NTI, National Tuberculosis Institute; TRC, Tuberculosis Research Centre; OICD, Ojha Institute of Chest Disease; FTC, Federal Government Tuberculosis Centre; LFN, low false negative; LFP, low false positive; HFP, high false positive; QE, quantification error (acceptable result).

Public Health Laboratory of Bhutan has read 85 slides with only one incorrect result (Quantification Error) in the year 2008 (5th round). NTI, Bangalore and TRC, Chennai both from India participated since 2004 (2nd round). These laboratories have read 60 slides each and only one QE has been reported from NTI in the year 2009 (6th round). Indira Gandhi Memorial Hospital Laboratory of Maldives has been participating in Panel Testing since 2003 and 3 errors have been reported (1, low false negative; 2 Quantification Error). National TB Reference Laboratory, Nepal has not reported any errors since its participation in 2003. Ojha Institute of Chest Disease and Federal Government Tuberculosis Centre from Pakistan

are participating since 2003 and 2 (1, LFN and 1, LFP) errors were reported, respectively. All of these errors were reported in 2010 (7th round). Like TB Reference Laboratories from Pakistan, TB Reference Laboratory of Sri Lanka reported one LFN result in 2010. No errors of any kind were reported by any laboratory in 2004 (2nd round).

The percentage agreement was more than 95% for 9 out of 10 participants and 100% agreement was seen for 5 laboratories (Table 2). Similarly, sensitivity was more 90% for all laboratories and specificity was more than 95% for all laboratories except for Afghanistan (83.33%).

Table 2. Indicators of External Quality Assessment for Sputum Smear Microscopy in SAARC Laboratory Network

Country	Positive result agreed between STRL and NRLs	Negative result agreed between STRL and NRLs	Positive results of STRL	Negative results of STRL	% Agreement between STRL and NRLs	Sensitivity	Specificity
Afghanistan	20	15	22	18	87.50	90.90	83.33
Bangladesh	56	27	56	27	100	100	100
Bhutan	60	25	60	25	100	100	100
India, NTI	40	20	40	20	100	100	100
India, TRC	42	18	42	18	100	100	100
Maldives	58	26	59	26	98.82	98.30	100
Nepal	57	28	57	28	100	100	100
Pakistan, OICD	58	25	59	26	97.64	98.30	96.15
Pakistan, FTC	59	25	59	26	98.82	100	96.15
Sri Lanka	56	27	58	27	97.64	96.55	100

*QE are taken as acceptable result for calculating indicators; NRLs, National TB Reference Laboratories

DISCUSSION

WHO Stop TB strategy for tuberculosis control (DOTS) relies on a network of laboratories that provides acid fast bacilli (AFB) sputum smear microscopy. Sputum smear microscopy (SSM) is the diagnostic tool to diagnose TB at the field level in the resource limited settings. The generation time for *Mycobacterium tuberculosis* is 18-24 hours so the culture and identification needs 4-6 weeks and further 4-6 weeks for drug susceptibility test.¹¹ Molecular techniques are easy, rapid and of high sensitivity for TB diagnosis but they are not economical and difficult to adopt in resource limited countries. Hence, quality assured SSM is only the tool to bring success to TB control program in resource limited settings.

STLR and ten other NRLs of SAARC Member States are within the SAARC TB Laboratory network and the regional Panel Testing for SSM is being regularly conducted by STRL. Total agreement of the program in the region is 98.07%. The success of TB control in the region is in part due to the quality assured SSM. By adopting DOTS strategy with a quality assured SSM, the

Region has achieved the global target of 70% of case detection (region, 71.9%) and 85% treatment success (region, 88%) and has made a remarkable progress in TB control.¹

The performance of Panel Testing was excellent (98.07%). Performance of all the TB reference laboratories was more than 95% while TB Reference Laboratory of Afghanistan was less than 90%. The Panel Testing conducted in Haiti showed 60% agreement and the sensitivity was below 80% for most of the laboratories assessed. However, the scoring criteria used in these two Panel testing were different.¹² Similarly, the percentage agreement of 8th round of Panel testing conducted at the district level in Bhutan was more than 90% for 15 out of 19 laboratories.¹³ The SAARC regional quality assurance for SSM has reported 778 panel slides, 15 were incorrect reports and most of them were low false negative (n=8). Similarly, in 8th Round of Panel testing conducted at the district level in Bhutan 27 errors were reported and 17 were low false. TB Reference Laboratories of Pakistan and Sri Lanka were doing well before 2010 in the Panel Testing conducted by STRL but few errors were reported in 2010. TB reference Laboratory of Maldives reported few errors (n=3) in initial rounds (1st and 3rd) of

EQASSM but has performed well in recent rounds. More than 5000 bacilli/ml of sputum is necessary to yield positive SSM and errors are common if a person expectorates few bacilli in the sputum.¹⁴

Sensitivity and specificity ranged from 90.90 to 100% and 83.33 to 100%, respectively. Errors in SSM are likely to result in failure to detect persons with active TB disease who can continue to spread the disease to the family members and to the community or unnecessary treatment for true negative cases. Errors in diagnosis can result in undue treatment of normal cases. Errors on follow up cases can result in overtreatment. Similarly, errors in detecting AFB on treatment failure cases can result in continued spread drug resistant TB in the community. Hence, error free SSM microscopy is utmost priority in the region. The high turnover of the staff and lack of training and refresher training affects the results. Hence, there should be training for new staff and refresher training for old staff on SSM. Case detection through quality assured SSM and their treatment through supply of quality assured drugs ensures the success of the TB control programme. But this also has a limitation that not all TB cases can be detected through SSM. Some TB patients who are sputum smear negative can also give TB culture positive as culture is more sensitive and can detect as low as 10 bacilli/ml of sputum.¹⁵ Introduction of recent diagnostic test like, Gene Xpert MTB/Rif to detect *M. tuberculosis* would be helpful to fight against TB and achieve global targets.

CONCLUSION

The excellent EQASSM within the SAARC TB Laboratory Network is one of the contributors of the success behind the TB case detection, high treatment success rate and successful TB control programmes in the region. EQA for culture & drug susceptibility testing is highly recommended within the STRL network to fight against TB.

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TREATMENT SEEKING BEHAVIOUR FOR PULMONARY TUBERCULOSIS AMONG CHEST SYMPTOMATIC IN BHUTAN

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ABSTRACT

Introduction: TB is one of the sixth leading diseases that cause deaths in Bhutan. There were 1344 new cases in 1989 and 1060 cases in 1992. About 910 people develop tuberculosis every year. Observing the increasing trend, this study was conducted in community and in hospitals from January 2006 to June 2007 in Bhutan. The overall objective of this study is to identify the factors influencing delays in seeking health care for tuberculosis among TB patients and TB suspects.

Methodology: The study was conducted in the community and hospital from January 2006 to June 2007 among 200 TB patients and 200 TB suspects with 5 TB patients and 5 TB suspects in depth focus group interviews with 10 groups of health workers and 10 groups of community people. Two groups of people were taken; one group had active tuberculosis and another group who were TB suspects. Moreover, health worker and community people were also asked about the disease. Two methodologies were used, one was structured questionnaires and another was in-depth and focus group interviews.

Results: TB patients' delay ranged from 0-210 days and median delay was 17.5 days. Patient's delay in TB suspects ranged from 0 to 365 days with median delay of 14 days. "Covering mouth" while talking, was the most common stigma that came out of the interviews.

Conclusion: The study brought out certain important factors like; the increasing trend of disease may be due to the fact that people delay in seeking treatment.

Key words: TB, Delay, Patients, Seeking, Treatment.

INTRODUCTION

Global trend shows that tuberculosis is still a major problem among the developing countries which is true in case of Bhutan also. DOTS treatment is available in all district hospitals; though the number of cases is not diminishing. Therefore, this study was taken to explore the factors influencing delay in health seeking and social stigma perceived by TB patients and TB suspects.

Tuberculosis is one of the most challenging diseases prevalent in Bhutan and existed from the earliest time in history of Bhutan.¹ A detailed

analysis of situation about the TB disease was carried out in the end of 1993 and decision was taken to implement short course chemotherapy in 1994.¹ The Ministry of Health established National Tuberculosis Control Program to achieve 80% case detection and have 100% BCG coverage, with nationwide short course therapy (TB manual, 2005). There were 1344 new cases in 1989 and in 1992 there were 1060 case reported (AHB, 1989-92). About 910 people estimated to develop tuberculosis every year in Bhutan.² To contain and manage TB, Ministry of Health initiated regulated control programs since 1994. It still remains a challenge. In 2005, total new and retreated cases were 1018, new cases were 310. Mortality rate due to TB is 29 (4.12%) in 2005 along with other diseases.³

The main strategy of NTCP in Bhutan is to achieve 100% DOTS treatment coverage, reduce

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prevalence to 1 per 1000 population (TB control manual, 2001) and create awareness among people about TB, enabling early diagnosis and treatment. Hospitals keep smear positive cases in isolation and patients are sent home once sputum negative.

Basic Health Units lack the facility to diagnose and treat tuberculosis though health assistant prepare sputum slides for suspected cases and send them to district hospitals for diagnosis. Health staff collects anti-tuberculosis drugs from district hospitals for patients who cannot collect themselves.

According to WHO⁴ out of the seven million people living with HIV/AIDS in the Region, over half are infected with TB. Of these nearly 150,000 newly diagnosed TB patients, are estimated to be resistant to first-line anti-TB drugs. With 25% of the world's population, the South East Region is home to the largest numbers of TB patients in the world.

In Bhutan, at present there are 1150 cases of all types of TB. In 2007 there were 328 sputum positive cases and in 2008 there are 351. In addition, there are 11 TB-HIV co-infection cases. There was no study done before to know why people are contracting the disease in spite of free availability of the DOTS, anti-TB drugs, furthermore in Bhutan people do have lots of local beliefs that may hamper people for not seeking treatment in time. No explorative study is done to find out the cause of increasing trend in spite of having free drugs availability and high awareness campaigns.

The overall objective of this study is to identify the factors influencing delays in seeking health care for tuberculosis among TB patients and TB suspects. In addition, barriers to seeking health care for respiratory symptoms in the general population were explored. Specific objectives were to determine the interval between the onset of respiratory symptoms and TB diagnosis for both TB patients and TB suspects.

1. To evaluate social stigma as a factor for delayed seeking.
2. To describe and compare the factors influencing delays in health seeking behaviour.
3. To explore and identify some of the potential reasons for delayed care among chest symptomatics.

METHODOLOGY

Sample, sample size and study period

This study adopted both quantitative as well as qualitative design. It is cross-sectional study done in ten hospitals who reported highest TB cases. As the number of cases coming to hospital was less, non probability sampling using purposive sampling was adopted to administer questionnaires. The patients who were newly diagnosed TB were taken at that point of time from ten hospitals. In-depth interview and focus group interviews were used in qualitative design.

Study I- Structured questionnaires were administered to 200 newly diagnosed (within two weeks) TB and 200 chest symptomatics patients. Patients included both sexes. Study was done over a period of one and half year.

Study II- 5 newly diagnosed TB patients and 5 TB suspects who do not seek diagnosis and treatment. 10 -focus group interviews with different category of health workers including both sexes and 10-Focus group interviews with community members

Data collection

After the questionnaires were tested by panel of experts from World Health organization, the focal persons were trained to use questionnaires and undertake in depth interviews. The questionnaires and the tapes were sent to ten hospitals through these focal persons. As the questionnaires were filled, interviews were recorded; the focal person brought them to principal investigator. The data was jointly collected by principal investigator, health workers, nurses who were trained to administer questionnaires and conduct in-depth interviews. The focus group discussion was conducted by the principal investigator in all places. Triangulation of data enhanced credibility of data and converse for the truth.⁵

Ethical consideration

The permission was sought from the Ministry of Health through Health Research Working Committee. In each district, the District Medical Officer's permission was taken to conduct the

study. Additionally, informed consent from patients and TB suspects was taken to conduct interviews. Relapsed cases, below 18 years of age & those who refused to take part in the study were excluded from study.

Data analysis

The questionnaires was analysed using Epi-Info and simple statistics and advanced statistics e.g. complex sample means, liner and logistic regression. The P value was set at was 0.05. The analysis is displayed using table and bar graph. SPSS was used for simple and advanced descriptive statistics. As personal and group interview are less formulaic, mostly is to organise, provide structure and elicit meaning from data. Investigator triangulation, a tool that enhances trustworthiness and the tape and field notes were read and reread then integrated and interpreted. Content analysis aids to identify prominent themes and identify patterns among the themes. Comprehending and synthesizing paradigms was done after listening to tapes repeatedly and filling gaps through field notes and transcription of data followed coding and extraction of themes. Plethora of data assisted to take consensus and agree on the themes. From the three categorical style of qualitative analysis, editing analysis was somewhat applicable. This style adopts developing of category schemes and gives corresponding codes that helps to sort and organise data. This style somewhat fit to analyse transcript of ten groups of focus group discussion and ten in-depth interviews. Taking of views of community people, health worker and patient did capture insightful construct thus finding are meaningful to be applied. For this method, representative sample and data saturation were the guiding principle.⁵

Study I- Being a cross sectional descriptive study, all patients present at the time of administering questionnaire were taken. The basis of selection was that the interviewer waited till patient was confirmed TB positive. The admitted patients were administered structured questionnaires. This process went on every time a new patient was admitted. Some patients were interviewed by the TB unit In-charge. Patients who are not admitted in wards are referred to the TB Unit for registration

and collect medicine. Those newly diagnosed patients were administered questionnaires. Any patient who did not registered for the medicine may be missed but hardly TB patients' buys medicine on their own as medicine is freely available in all hospitals. All patients who were approached by the interviewer did agree to be the participants. The characteristics of patients are shown in graphs and attached as appendix. For chest symptoms, similar process was adopted till the specified number of patients were completed.

Study II- An in-depth interview was held with a sample size of 5 TB patients who are discharged after being sputum negative. Each subject was from different district. Another in-depth interview was carried out with 5 community members with respiratory symptoms who did not seek care. They were evaluated using in-depth interviews; each one was from different district hospital. Focus group discussion was carried out with ten groups of health worker consisting of mixed people e.g. nurses, technician, doctors, specialist, health assistant, basic health worker and auxiliary nurse midwife. The group had both sexes. The focus group discussion was done in ten Districts. The focus group discussions were also carried out with eight groups of community members having both male and females. Each focus group discussion was carried out in different Districts, a total of ten districts were selected. Almost all approached patients agreed to be the participants.

The most significant risk factor was losing the job. People who were working in hotels and as maids did not want to reveal the disease to their employees for fear of losing their jobs. The next was fear of getting separated from spouse therefore the disease was revealed to the parents only.

RESULTS

The mean number of days in delay of TB patients & suspects were 30.10 & 64.86, respectively. The commonest stigma was "covering mouth" while talking (Table 1). The mean age of male & female participants were 48.56 & 42.47, respectively (Table 2). Most TB patients visiting the hospital were from Tashigang district (Figure 1).

Table 1. Correlations between Delay and Stigmas for TB Patients

		DELAY	N1I	N1II	N1III	N1IV	N1V	N1VI	N1VII	N1VIII	N1IX	N1X	N1XI
DELAY	Pearson Correlation	1	.063	.160(*)	-.070	.007	.052	.141	.065	.085	.032	-.095	.195(**)
	N	200	179	182	184	181	179	184	182	185	182	175	178

* Correlation is significant at the 0.05 level (2-tailed), ** Correlation is significant at the 0.01 level (2-tailed) N1I; People doesn't call in social events, N1II; Get kicked out of work, N1III; Friends avoid them, N1IV; Avoid marriage, N1V; People served in broken utensils, N1VI; Covers mouth while talking, N1VII; Friends do not shake hands, N1VIII; People avoid TB patients, N1IX; Patients avoid treatment due to fear of exposure, N1X; Discrimination is less if sputum is negative, N1XI; Spouse deserts you

Table 2. Complex Samples of Means of Age and Sex

S. No.	Sex	Count	Mean (age)	Confidence Limits(age) 95%	
				Lower	Upper
1	M	107	48.56	28.91	68.21
2	F	93	42.47	20.90	64.04
TOTAL		200	45.73	25.93	65.52

Name of Districts of Bhutan

1. Samtse,
2. Chukka,
3. Dagana,
4. Damphu,
5. Sarpang,
6. Zhemgang,
7. Mongar,
8. Pemagatshel,
9. Samdrup Jongkhar,
10. Tashigang
11. Trongsa
12. Wangdiphodrang
13. Punakha
14. Thimphu
15. Paro
16. Jakar
17. Lhuntse
18. Ha
19. Yang-Tse
20. Ga..

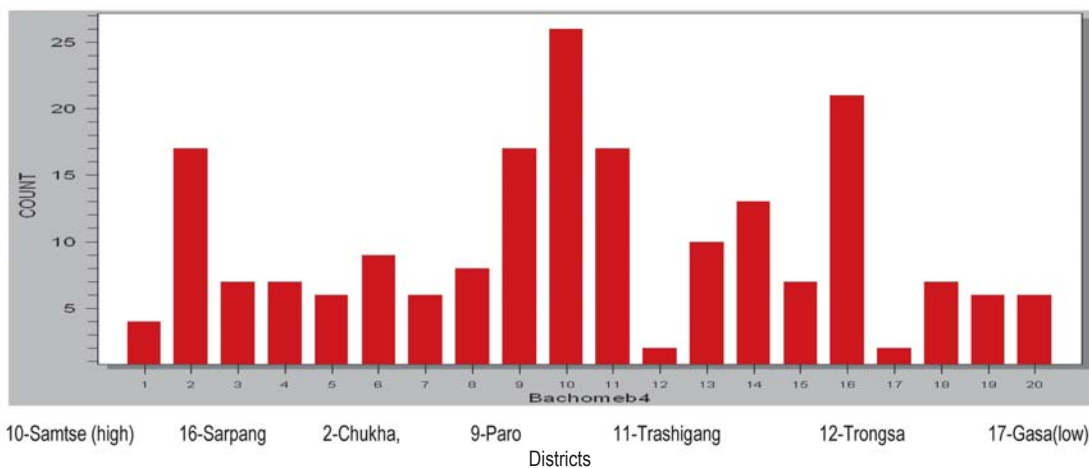


Figure 1. Number of patients from 20 districts

DISCUSSION

People delayed for diagnosis and treatment from few days to one week. For in-depth interview, the delay was one week that was mentioned by almost every interviewee. Conducting of religious ritual and performance by local healer before taking patients to health facility was mentioned by many patients as people go to local healer before bringing patients to health facility. High incidence of acute respiratory infection does mask the TB symptoms as in every health facility, ARI tops the ten most priority disease therefore TB may

be mistaken as ARI and not treated properly. The delay within the health facility to diagnose and treat patient was another point noted during the in-depth interview, where from seeing a physician, getting investigated, diagnose to treatment takes one week in hospitals.

In this regard the educating of religious people has become very vital. If people fall sick, the religious ritual and the visit to health facility should be done side by side and not only do religious rituals. But few local healers do advice against visiting health facility. The behaviour of people regarding the delay due to religious ritual can be addressed through IEC activities.

The other forms of delay due to health worker and the health facility may be solved through equipping the facility with manpower and equipments. People are aware of symptoms of TB but they fail to put together these symptoms and suspect TB. Among the symptoms, haemoptysis was considered as highest priority and people diagnose it as TB. The incidence of TB was higher in southern Bhutan and less in northern Districts e.g. Gasa and Trongsa (Figure 1) almost every person visited health facility for treating respiratory symptoms once a year only. Among chest symptomatic, there are people who were chronically suffering from some sort of chest symptoms, therefore some people have said that they have suffered for several years. Most of the stigmas were pointed out by clients from Southern Bhutan and people from Northern side did not discriminate TB patient that much. Understanding the help seeking behaviour of the people towards the disease it is important to plan appropriate measures in controlling TB. Eradication of the disease itself will take a concerted effort on the part of the health workers, doctors, researchers, patients, and the program unit. TB Program is escalating IEC activities to create awareness among people and thereby bring down both morbidity and mortality rate of the country. As mentioned above, a study with larger sample would give a true view of TB situation in Bhutan. This study was a challenge that taught and used health workers, nurses, patients, relatives to be more aware about TB. Along with interviews, patients were encouraged to ask any misgivings on TB. Guidance and health education for adherence to drug till full course is completed and information on taking rest and balanced diet during the convalescence were conveyed.

CONCLUSION

The study brought out certain important factors that were; the increasing trend of disease may be due to the fact that people delay in seeking treatment. They first visit the local healer and later on then only come to hospitals. The symptoms on coughing are taken as only acute respiratory infection and not relate to TB unless the patient has hemoptysis. This view was same with the health worker, community people and relatives. Another fact was in people knew that one has TB, the patient was barred from visiting people's house during religious ceremonies and also may be out of the employment. People were aware of the drugs availability in hospitals.

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TUBERCULOSIS OF LARYNX – A CASE STUDY, INDIA

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ABSTRACT

Tuberculosis of larynx is a rare form of tuberculosis. Patients usually present with hoarseness of voice or dysphagia and other non-specific constitutional symptoms like fever or localized pain. We are reporting a case of 55 year old male who presented to us with hoarseness of voice, odynophagia and a proliferative growth in the epiglottis which was diagnosed as laryngeal tuberculosis on histopathological examination (HPE). He also had associated pulmonary tuberculosis.

Key words: Tuberculosis, Larynx, India

INTRODUCTION

Tuberculosis of the larynx is a rare form of tuberculosis. Tuberculosis remains a serious world health problem. Each year millions of people world wide contract tuberculosis and millions die from this disease.

Tuberculosis is more common in developing countries than in developed countries. Although laryngeal involvement tuberculosis is less than 1% among tuberculosis patients, incidence of laryngeal tuberculosis has been greatly reduced due to effective chemotherapy and public health measures.

Laryngeal tuberculosis classically develops due to direct spread to the larynx from contaminated sputum but can also occur due to hematogenous spread.

More recently tuberculosis of larynx has been diagnosed by clinicians attempting to rule out carcinoma. It was seen in only one third of the cases of pulmonary tuberculosis.

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Tissue biopsy and Histopathological Examination (HPE) showing caseating granulomas is the confirmatory diagnostic test. The patients respond well to ATT in 2-3 weeks time. This case report describes laryngeal tuberculosis co-existent with pulmonary tuberculosis.

CASE REPORT

A 55 year old male presented to us with chief complaints of hoarseness of voice, odynophagia, fever and decreased appetite of 9 months duration. He also had cough with expectoration. The patient was a chronic smoker with no history of drug abuse or alcohol consumption.

On general physical examination he was conscious, emaciated, ill looking, and a febrile. There was no clinical lymphadenopathy or scars, sinuses or clubbing.

Indirect laryngoscopy was done which revealed growth involving epiglottis and right aryepiglottic fold, vocal cords were moving with no signs of infiltration. Respiratory system examination revealed bronchial breathing, crepts on infra-scapular region.

Fibro-optic laryngoscopy (fol) examination was done which confirmed our indirect laryngoscopy findings. These findings prompted us to suspect a case of carcinoma.

Patient was evaluated and investigations revealed on chest x-ray trachea deviated to right, fibrosis in right upper zone diffuse infiltrates on right side, non homogenous showdown right lower zone (Figure 2). Soft tissue x-ray neck showed thickened epiglottis (Figure 1), CE-CT larynx and chest revealed homogenous mass involving epiglottis and fibrosis and cavitary lesions in right lung (Figure 3,4).



Figure 1. Soft tissue X-ray neck



Figure 2. Chest Radiography



Figure 3. CT scan of larynx showing homogenous mass involving larynx



Figure 4. CT scan of chest showing fibrosis & cavitations in right larynx

Complete blood count, bio-chemical parameters and serological tests for HIV/SYPHLIS were normal. ESR was high at 55mm/hr, AFB; were positive.

Direct examination was performed under local examination and biopsy was taken from the lesion. The pathological examination revealed caseating granulomatous lesion with lymphocytes suggestive of laryngeal tuberculosis. A standard treatment as applicable under DOTS programme was given to patient who responded to the treatment.

DISCUSSION

Laryngeal tuberculosis is an infrequent manifestation of infection by mycobacterium tuberculosis.¹ Usually, it is seen as a complication of pulmonary tuberculosis but sometimes only laryngeal involvement is possible.^{1,2}

Laryngeal tuberculosis is the most common granulomatous disease of the larynx and has usually been considered to result from pulmonary tuberculosis although it might be localized in the larynx as a primary lesion without any pulmonary involvement. Incidence of laryngeal tuberculosis is less than 1% of all tuberculosis cases.² The pathogenesis of laryngeal involvement is either primary³ or secondary. Pulmonary⁴ lesions occur in the absence of pulmonary disease. In the present case, the laryngeal involvement was probably secondary to pulmonary disease.

It commonly affects males more than females and the usual age of presentation is 40-50 years⁵, the age of the present case was 55 yrs old which was in this range.

Early description of laryngeal tuberculosis identified the posterior part of the larynx as the most frequently affected, especially in patients who were bed ridden and in whom sputum got collected in the interarytenoid region⁶. The commonest part involved is vocal cords (50-70%) and the least affected is the epiglottis.⁷

In the present case, epiglottis was involved which was itself a rare presentation. In our case, there was dilemma as the patient had hoarseness of voice and odynophagia only there was no h/o of hemoptysis, which made us to suspect it to be malignancy.⁵

Thus patients who present with hoarseness of voice with no pulmonary symptoms laryngeal tuberculosis should be considered in the differential diagnosis in any patient with unexplained hoarseness of voice.

Hemoptysis, stridor or odynophagia are other common symptoms which make it difficult to differentiate from laryngeal carcinoma.

Laryngeal tuberculosis may be categorized into (shin et al)

Polypoidal (22.7%)

Ulcerative (40.9%)

Non-specific (27.3%)

Ulcerative - fugitive mass (9.1%)

In our case it was ulcero-fungative type present on the epiglottis.

Direct laryngoscopy and biopsy are mandatory to establish a definite diagnosis. It should be kept in mind when differentiation between tuberculosis and malignancy is not possible.⁸

The basic principles that underlie the treatment of pulmonary tuberculosis also apply to extra-pulmonary forms of the disease. Extra-pulmonary foci usually respond to treatment more rapidly than cavitary pulmonary tuberculosis.

CONCLUSION

This case is a warning that a growth like lesion in upper respiratory tract could be tuberculosis and efforts should be made to locate an active /inactive lesion elsewhere in the body.

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