

EPIDEMIOLOGY OF TUBERCULOSIS IN A TEA FARMING AREA IN MUFINDI DISTRICT

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Abstract

Introduction: Mufindi is a district of mixed population with inhabitants from all over the neighboring districts and regions. Its settlement and development is mainly attributed by the construction of factories and large tea farms that provide as source of employment to the inhabitants. There is a very high interaction between the villagers and workers from the factories and tea farms. There are indications that tuberculosis (TB) in this area is becoming a public health problem that a need to quantify its magnitude was put forward.

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Set up: Review of TB records from 1995 to 1997 from TB register books in four health facilities in and around the tea farming area was made. The facilities included Kibao Mission Dispensary, Lugoda Hospital, Kasanga and Ifwagi Health Centers.

Study Design: This is a retrospective study.

Results: A total of 88, 158 and 139 TB patients were reported from the area in 1995, 1996 and 1997 respectively. This was 22%, 33% and 30% of all TB patients in the district in the studied years respectively. In 1995 and 1996 the area had 83 and 63 smear positive TB patients respectively. Case notification rate in the study area in 1995, 1996 and 1997 was 127/100,000, 340/100,000 and 277/100,000 respectively. This was relatively higher than that of the district in the studied years (174/100,000, 168/100,000 and 158/100,000 respectively). In 1996, Kibao Mission Dispensary had a higher death rate in both smear positive and smear negative (34% and 33% respectively) TB patients compared to 22% and 15% of the district annual death rate for the same period. Lugoda Hospital had a slightly similar death and cure rate to that of the district. In all the treatment units, smear negative TB patients experienced higher death rates than smear positive TB patients. Cure rate in all treatment units was relatively low (54% and 48% in smear positive for 1996 and 1997 in Kibao Mission Dispensary). Treatment completion rates among smear negative TB patients were also low (54% and 68% for the years 1996 and 1997 respectively in Kibao Mission Dispensary, 52%, 45% and 58% for the years 1995, 1996 and 1997 respectively in Lugoda Hospital). It was also rather low even when it was compared to the district annual death and cure rate.

Conclusion: The high case notification rate, low cure rate and high death rate observed among tuberculosis patients in this study, call for an extensive study to investigate factors contributing to the high prevalence of tuberculosis in the area and design an approach to solve the problem.

Introduction

Tuberculosis (TB) is a public health problem that is extremely sensitive to changes in the standard of living. It is an infection that is primarily spread directly from human being to human being. The degree of crowding and the standard of housing are therefore important factors when it comes to the spread of the disease (1). Tuberculosis is also sensitive to nutrition. Persons with good diets are far more resistant to the disease than those suffering from malnutrition or those with poor diet. Where diet and housing conditions operate against each other, the frequency and occurrence of tuberculosis function as a measure of the net result.

Because of its extent and nature, tuberculosis is a disease that affects both the economy and the attitudes of the society at the same time as it causes considerable human suffering. Globally, this is experienced in population groups at special risk such as prisoners, refugee camps, mining areas and aggregates of large farming areas (2,3).

Tuberculosis is the world's foremost cause of death from a single infectious agent among adults. Although morbidity and mortality rates are highest in low-income countries, industrialized countries have also faced a recent resurgence of TB epidemic (4). A critical strategy for the successful elimination of tuberculosis is the prompt, appropriate and complete treatment of all active cases.

In Tanzania like in other developing countries, tuberculosis new cases are reported to increase every year especially after the advent of the human Immunodeficiency virus infection (HIV). Initially, the increase was seen in urban settings than in rural areas. According to the Tanzania, National TB and Leprosy

Program, the increase is now also seen in rural areas (5).

Tuberculosis is among the major public health problems in Tanzania. It is one of the top ten causes of morbidity and mortality. Case notification of TB has been increasing for the past ten years. Increased population, improved services and increased awareness of the problem, and the HIV/AIDS pandemic may be among the major contributing factors.

In historical terms, Mufindi is a district of mixed population with inhabitants from all over the neighbouring districts and regions. The settlement and development of the district is mainly attributed by the construction of a number of factories and tea plantations that are a source of employment to the inhabitants. The factories include the Southern Paper Mills, which is the biggest of its kind in the Southern Sahara region.

The companies running the tea plantations provide housing and free health services to its workers who amount to about 4,000 to 8,000 every year. Some of the workers reside in the villages surrounding the tea estates. Thus the villages serve as labor catchments areas to the farms, and have resulted into a high level of interaction between the villagers, the workers from the tea farms and the basic services in the area. The companies own a number of first aid dispensaries, which refer complicated cases to a large hospital owned by one of the companies. There are two health centres and two dispensaries (Kasanga, Ifwagi, Kibao Mission and Kibao Village dispensaries respectively), which serve the villages around the tea estates. Being the only large health facility in the area, the company hospital is not easily accessible to a majority of the patients seeking health services from the area, a factor which is

considered to be the major cause of increased unattended and hence unreported causes of deaths in the area. In view of health services setup in the area, the dispensaries do not perform microscopy for detection of mycobacteria. This is due to lack of trained personnel and basic facilities for the purpose. There are indications that tuberculosis in this area is becoming a public health problem that a need to quantify its magnitude was put forward.

Methods

This was a retrospective study where analysis of tuberculosis records from 1995 to 1997 in four health facilities in and around the tea farming area in Mufindi district was made. The facilities included Kibao Mission Dispensary, Lugoda Hospital, Kasanga and Ifwagi Health Centers.

Observations

The area recorded a total of 385 tuberculosis patients during the study period. Tuberculosis cases increased from 88 in 1995 to 158 and 139 in 1996 and 1997, respectively. All patients were attended at Kibao Mission Dispensary and Lugoda Hospital, which are the only health facilities providing tuberculosis services in the area (Table 1). The number and proportion of smear positive pulmonary tuberculosis patients in 1996 and 1997 is shown in figure 2.

Table 1: Reported Tuberculosis Patients in the Tea Farming Area in Mufindi District: 1995-1997

Year	Total	Kibao Mission Dispensary		Lugoda Hospital	
		Number	%	Number	%
1995	88	56	63.6	32	36.4
1996	158	111	70.3	47	29.7
1997	139	91	65.5	48	34.5

There was an increase in proportion of smear positive cases at Kibao Mission Dispensary over the study period while a decrease from 41% in 1996 to 15.6% in 1997 at Lugoda Hospital was noted.

Table 2: Smear Positive Tuberculosis Cases

Year	Total Patients	Smear positive		Kibao Mission Dispensary		Lugoda Hospital	
		Number	%	Number	%	Number	%
1995	88	10*	11.4*	-	-	10*	100*
1996	158	39	24.7	23	59.0	16	41.0
1997	139	32	23.0	27	84.4	5	15.6

* For Lugoda Hospital only

The comparison in tuberculosis case notification rate in the study area from 1995 to 1997 is shown in table 3. Tuberculosis case notification rate in the study area

was relatively higher than that of the district in the same period.

Table 3: Case Notification Rate (per 100,000); 1995-1997

Year	District	Area
1995	174	127
1996	168	340
1997	158	277

Cure rates in the two treatment units were relatively low (54% and 48% in smear positive for 1996 and 1997 at Kibao Mission Dispensary). Further comparison of treatment outcome between the facilities is shown in tables table 4 and 5.

Table 4: Tuberculosis Treatment Outcome at Kibao Mission Dispensary

Year	Category	Smear +ve		Smear -ve	
		District	Dispensary	District	Dispensary
	Cured	57%	54%	NA	NA
1996	Treatment completed	NA	NA	76%	54%
	Died	22%	34%	15%	33%
	Cured	57%	48%	NA	NA
1997	Treatment completed	NA	NA	*	68%
	Died	22%	23%	*	25%

NA= Not Applicable * = results were not available

Table 5: Treatment Results at Lugoda Hospital

Year	Category	Smear +ve		Smear -ve	
		District	Dispensary	District	Dispensary
	Cured	47%	55%	NA	NA
1995	Treatment completed	NA	NA	67%	52%
	Died	11%	9%	13%	14%
	Cured	57%	69%	NA	NA
1996	Treatment completed	NA	NA	76%	45%
	Died	22%	6%	15%	29%
	Cure rate	57%	58%	NA	NA
1997	Treatment completed	NA	NA	*	58%
	Died	22%	6%	*	21%

NA= Not Applicable * = results were not available

In 1996, Kibao Mission Dispensary had higher death rates in both smear positive and smear negative tuberculosis patients (34% and 33%, accordingly) compared to 22% and 15% of the district annual death rate for the same period. Lugoda Hospital had a slightly similar death and cure rate to that of the district. In all the two treatment units, smear negative experienced higher death rates than smear positive tuberculosis patients (Table 5).

Table 6: *Death rate due to tuberculosis in Kibao Mission Dispensary and Lugoda Hospital*

Year	Health Facility	Death			
		Male		Female	
1995		4	36.4%	2	20%
1996	Lugoda Hospital	4	36.4%	4	40%
1997		3	27.2%	4	40%
Total		11		10	
1995		7	31.8%	6	22.2%
1996	Kibao Mission Dispensary	9	40.9%	12	44.4%
1997		6	27.3%	9	33.3%
Total		22		27	

Discussion

It was noted that the area harbours about 25% of the district population. About 33% of the district tuberculosis patients come from the studied area. There was a high proportion of smear negative pulmonary tuberculosis patients at Kibao Dispensary in the same period. It was not clear whether the high proportion of smear negative was due to problems in diagnostic competence of the laboratory personnel or due to high prevalence of atypical presentation of the disease associated with human immunodeficiency virus (HIV) infection in the area. Although tuberculosis case notification rate in 1995 was relatively low as compared to that of the district, in 1996 and 1997 the notification rate was almost twice that of the district.

Cure rates in all treatment units were slightly low especially in smear negative TB patients. It was also rather low even when compared to that of the district annual cure rate. In 1996, Kibao Mission Dispensary experienced high death rate in both smear positive and smear negative (34% and 33%, respectively) compared to the district annual death rate (22% and 15%, respectively). In all treatment units (Kibao and Lugoda Hospital) more smear negative patients died than smear positive TB patients.

Conclusion

The high case notification rate, low cure rate and high death rate observed among tuberculosis patients in this study shows that tuberculosis is an existing public health problem. The records could not indicate clearly the possible contributing factors to the high prevalence of the disease in the area that a need for another study to identify the factors is suggested. Similarly, an intervention program to alleviate the problem is proposed.

Reference

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