

A Study on Filaria Patients Attended Filaria and General Hospital in Bangladesh

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ABSTRACT

Lymphatic filariasis (LF), commonly known as elephantiasis, is one of the Neglected Tropical Diseases (NTDs) and has emerged as a public health problem. It is the second leading cause of disability in the world with millions of patients suffering from disability.

Southeast Asia plus Northeast India and Bangladesh account for over a fifth of the population of these two regions. Elimination of LF in these areas would, therefore, have a significant impact on the global disease burden. Bangladesh entered the post Mass drug administration surveillance since MDA is finished, Bangladesh government aims to declare as a filarial free country by 2021. The objective of this study is to reveal the prevalence and characteristics of Filaria patients in the filaria and General Hospital (A project of Institute of Allergy and Clinical Immunology of Bangladesh –IACIB) attended for morbidity control. This is a retrospective descriptive study was carried out in filaria and General Hospital. Study participants were registered patients with LF (n=570) during the period from April 3, 2018, to August 2, 2019.

Most LF patients were in the prime of their life. Many patients have severe disabilities and symptoms that impair their appearance, such as swelling, ADL. As Bangladesh has been waiting for LF free, the resources should be shifted to further counting and undertaking the morbidity burden. Infection control by proper symptomatic treatment followed by Sequential Compression therapy, Twisting Tourniquet therapy and Bandaging for morbidity control should be done by Government through proper training to doctors and paramedics.

Keywords

Lymphatic Filariasis, hydrocele, LF elimination, morbidity control

Introduction/Background

Lymphatic filariasis (LF), commonly known as elephantiasis, is one of the Neglected Tropical Diseases (NTDs) and has emerged as a public health problem. It is the second leading cause of disability

in the world with millions of patients suffering from disability. Infection occurs when filarial parasites (*Wuchereria bancrofti*, *Brugia malayi*, and *Brugia timori*) are transmitted by mosquitoes to humans. The infection is usually acquired in childhood, causing hidden damage to the lymphatic system, resulting in severe morbidity from progressive, irreversible swelling of the limbs and genitals etc.

After the bite by an infective mosquito, the infective larvae enter the lymphatics and develop into adult males and females. The initial acute symptoms develop as a response to these adult worms both living and dead. The main clinical features are fever, skin rashes, inflamed red streaks on the skin, pain, swelling in axilla and groins due to lymphadenitis, mastitis in female and infection of male genitals resulting as orchitis, epididymo-orchitis and funiculitis [1-3].

The target for global elimination of this Lymphatic Filariasis as a public health problem is 2020. To date, 29 of 55 countries still requiring Mass Drug Administration (MDA) are not 'on track' to reduce infection and stop treatment by 2020 [4,5].

WHO launched the Global Programme to Eliminate Lymphatic Filariasis (GPELF) in 2000. Since then, coverage of MDA using combinations of two medicines recommended by WHO has expanded from 3 million people in 12 countries in 2000 to more than 496 million people in 53 countries in 2009. The Programme includes two main components 1) interrupting transmission of LF by MDA and 2) managing morbidity and preventing disability [6].

The areas considered here (Southeast Asia plus Northeast India and Bangladesh) account for over a fifth of the population of these two regions. Elimination of LF in these areas would, therefore, have a significant impact on the global burden [1].

Over the past decade, it has made great progress in the context of the elimination of LF. Bangladesh is one of the first countries to start the elimination programme in 2001 by adopting the MDA strategy with the support of the Global Programme to Eliminate LF (GPELF) and MDA continued till November 2010 [7]. This Filariasis elimination Program in Bangladesh was developed in 2000, implemented till elimination with last dose of MDA in November 2010 was done by PI Prof. Dr. Moazzem Hossain while he was Director Disease control under Ministry of Health.

Recently Bangladesh entered the post-drug administration surveillance since MDA has been finished, Bangladesh Government aims to declare and be recognized as a filarial disease-free country by 2021. In Bangladesh there is no Government planned program for morbidity control. Only "Filaria and General Hospital", a project of "Institute of Allergy and Clinical Immunology of Bangladesh (IACIB)" has been conducting morbidity control since its inception. In the hospital we controlled the infection of patient followed by Sequential Compression therapy, Twisting Tourniquet therapy and Bandaging for morbidity control.

Objective of study

The objective is to reveal the prevalence and characteristics of Filariasis patients in Filariasis and General Hospital attended for morbidity control and suggest ideas based on the result.

Methodology

This is a retrospective descriptive study that was carried out in the Filariasis and General Hospital. Study participants were registered

patients with filariasis (n=570) during the period from April 3, 2018, to August 2, 2019, on the record of The Patient Management System.

The data analysis was carried out using Micro Soft Excel 2019 and R programming language version 3.6.1.

Result

Table 1 indicates that the number of male patients was higher than female patients, which was 57.2% (326) of the patients were male, and 42.8% (244) were female among 570 patients.

	N	%	Sign/symptom	N	%
Total	570	100	Leg swelling		
Sex			Both	227	39.8
Male	326	57.2	Right leg	176	30.9
Female	244	42.8	Left leg	131	23.0
Division			Hand swelling		
Dhaka	301	52.8	Both	11	1.9
Rajshahi	52	9.1	Right hand	3	0.5
Barisal	49	8.6	Left hand	3	0.5
Chittagong	45	7.9	Hydrocele	6	1.1
Rangpur	41	7.2	Fungal abscess	283	49.6
Mymensingh	35	6.1	Stiffness	11	1.9
Khulna	32	5.6	Fold		
Sylhet	10	1.8	Deep	33	5.8
N/A	5	0.9	Shallow	1	0.2
District(top10)			Nodule	8	1.4
Dhaka	156	27.4	ADL	298	52.2
Manikganj	26	4.6	Acute fever	2	0.3
Narayanganj	21	3.7	Varicose veins	16	2.8
Gazipur	21	3.7	admission in hp	25	4.3
Tangail	20	3.5	Infected wound	26	4.5
Pabna	19	3.3	Lymphodoma scrotum penis	13	2.2
Barishal	19	3.3		Mean	SD
Faridpur	15	2.6		Age	40
Rangpur	14	2.5		Duration	13.7
Sirajganj	13	2.3		Stage	3.59
					1.4

Table 1: Marginal distributions of variables.

	Male		Female	
	n	%	n	%
Total	326	100	244	100
Sign/Symptom				
Leg swelling				
Both legs	124	38.0	100	41.0
Right leg	100	30.7	77	31.6
Left leg	75	23.0	58	23.8
Hand swelling				
Both hands	5	1.5	6	2.5
Left hand	1	0.3	2	0.8
Right hand	1	0.3	2	0.8
Hydrocill	5	1.5	1	0.4
Fungal ulcer	160	49.1	122	50.0
Stiffness	8	2.5	3	1.2
Fold				
Deep	24	7.4	9	3.7
Shallow	0	0.0	1	0.4
Nodule	6	1.8	2	0.8
ADL	176	54.0	121	49.6
Acute fever	2	0.6	0	0.0
Varicose veins	12	3.7	4	1.6
Infected wound	11	3.4	15	6.1
	Mean	SD	Mean	SD
Age	39	15.1	40.5	14.7
Duration	13.6	11.0	13.8	10.9

Table 2: Distribution of sign/symptom by sex.

Dhaka division was by far the highest division, followed by Rajshahi division, Barisal division. Patients from Dhaka district was by far the highest district, followed by Manikganj and Narayanganj district attended the hospital. Most of the patients symptomized at least one leg swelling. Nearly half of the patients symptomized adeno-lymphangitis (ADL) and fungal abscess.

Table 2 indicates that there was not much difference between males and females regarding sign/symptom, age and duration. The tendency of sign and symptom with high proportion was almost the same. The mean age of the male and female patients was around forty years old. The mean duration of LF treatment service for patients were around 13.7 years.

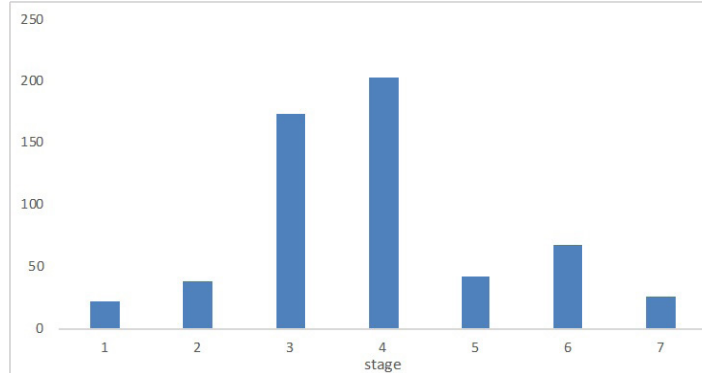


Figure 1: Distribution of the patients from LF stage.

Figure 1 shows the stages of LF patients. It shows that stage 4 patients were highest (35.5%) followed by stage 3 (30.5%), and stage 1 was lowest (3.86%).

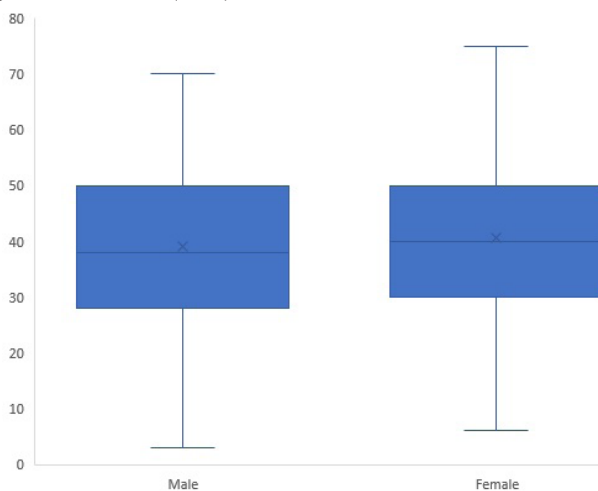


Figure 2: Distribution of the patients from age by sex.

Figure 2 shows that male patients were younger than female patients. Almost half of the patients were in their late twenty to fifty years old. The mean age of the patients was forty years old.

Figure 3 shows that leg(s) swelling, fungal abscess, and ADL seemed at each patient's age group. More than half of patients with each sign/symptom were in their thirties and fifties.

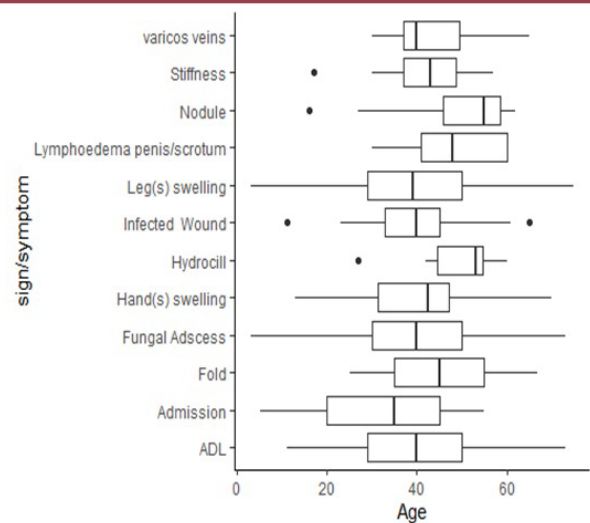


Figure 3: Distribution of the patients with sign/symptom and age.

In Filaria hospital we controlled the infection including ADL and Fungal infections of patient followed by Sequential Compression therapy, Twisting Tourniquet therapy and Bandaging for morbidity control along with elevation of affected part. The result was dramatic improvement within short time depending upon stages of swelling. But most patients cannot afford to stay in the hospital for long time.

Discussion

Although Rahman et al., mentioned the prevalence rate of filariasis was higher in northern area than the rest of the country [8], the proportion of the patients in Rangpur division located in the northern area of Bangladesh was not high in this study. Our result shows that the highest proportion of patients was in Dhaka division, followed by Rajshahi division, Barisal division, and the district with the highest proportion of patients was Dhaka followed by Manikganj, Narayanganj.

As our Filaria and General Hospital has been working on Filariasis Elimination in Nilphamari and Dhaka district, the patients in the northern area tend to visit the Filaria hospital of IACIB in Nilphamari which is located in northern area in Bangladesh. Thus, we assume that the patients from other parts of the country visit the hospital in Savar, Dhaka.

Out of 570 participants in this study, 326 (57.2%) were male, and 244 (42.8%) were female. While the study by Brab described that usually lower mean prevalence of infection in females than in males on LF [9], other studies have similar to our results, which were the male patient's proportion was more than female patients [10,11]. Although females may have a higher prevalence of LF, health-seeking behavior for the male is still higher than female in Bangladesh. We assume that the percentage of the male was higher than the female's percentage. We found that most of the patients were in their twenties to fifties years old, of which the mean age was forty years old. The mean length of time (the duration of LF) that the patient become disabled from LF was 15 years. Also, other studies described that the age group with a high percentage were

in late twenty to sixty years old [10-12].

The new LF patient has decreased since Bangladesh has transitioned to post-MDA surveillance and will aim to apply for elimination status after TAS in 2018 [1]. On top of this, the infection of LF is stated to occur mostly in childhood, while the disabilities generally manifest after 10-15 years [13]. As a result, the proportion of young age patients is small.

Considering their symptoms, almost all of the patients symptomized at least one leg swelling, and nearly half of the patients symptomized acute episodic of adenolymphangitis (ADL) and fungal ulcer in this study.

Other studies described the patients symptomized similar symptoms such as swelling, hydrocoele [10,14].

Chronic infection from lymphatic dysfunction, resulting in progressive, irreversible swelling of the limbs, breasts, or genitals. This disfigurement causes significant pain, disability, social stigma, and economic sequelae for sufferers [15].

In other words, these symptoms do not lead to the cause of death directly. However, it gives lots of burden to the patients and their families. As above mentioned, most of the patients were in the prime of their life. If the person is unable to work due to the disability of LF, the family also suffers financial loss. Most patients with ADL have fungal infection in the space of toes followed by super infection by bacteria, which is not properly addressed and treated by other clinicians. As a result, patients from all 64 districts of the country come to our Filaria and General hospital, the only specialized hospital in the country.

Loss of income and stigma due to the LF was reported by all households in the sample. Affected members of low-income households also had less opportunity to obtain appropriate treatment, which makes hygiene and compliance difficult. Thus becoming marginalized and forgotten [16]. Hence, we should put emphasize managing their morbidity to treat, care and rehabilitate to return to the society.

For patients with scrotal edema, as well as hydrocele and lymphatic scrotum, surgical excision of the diseased skin and scrotal reconstruction can alleviate symptoms. A low-fat, high-protein diet is suggested to patients with chyluria. The clinical severity and progression of the disease, including acute inflammatory episodes, can be reduced and/or prevented by simple measures of hygiene, skincare, exercise, and the elevation of affected limbs [17].

Karim et al. suggested that people with lymphedema must have access to community clinics (CC) for the care throughout their lives, both to manage the disease and to prevent progression. The revitalization of CC is one of the priorities of Bangladesh Government's health sector. Community clinics are small clinics at the grass-root level, and their main purpose is to provide first level primary care. Programme aimed to maximize the use of this

existing health infrastructure, and train clinic staff to identify and report cases, as well as provide health education and information on home-based long-term care to LF patients and their families and caregivers. This will help to ensure that patients who are not fully capable of self-care can maintain the highest possible quality of life, degree of independence, personal fulfillment, and dignity. It will also help to identify high prevalence areas, optimize the distribution of resources, and determine where additional surveillance may be required to show impact [18].

Since our participants were in the hospital, we expected that the patient's condition was better than the patients cared by other treatment more or less. All LF patients don't visit hospital. The study conducted by Sultana, about 16 percent of the patients did not take different types of medications due to financial problems, negligence, lack of knowledge, and others [19]. Patients seeking care from health centers or private providers spent more money than those seeking care from traditional practitioners, primarily because these providers had higher consultation charges [20]. Treatment costs impose a substantial financial burden. From the disease burden and Disability-Adjusted Life Years perspective [21]. That's why we need to understand the big picture to figure out those who don't care to eliminate LF in the real sense. For Filaria patient infection including ADL and Fungal infections in the inter digital spaces of toes should be controlled followed by Sequential Compression therapy, Twisting Tourniquet therapy and Bandaging for morbidity control, which gives dramatic improvement and reduce sufferings of patients.

Conclusion

Most of the LF patients were in the prime of their life. Many patients have severe disabilities and symptoms that impair their appearance, such as swelling, ADL. If the patient is unable to work due to the disability, the patient cannot receive adequate care. Besides, their family suffers financial loss as well. As Bangladesh has been waiting for LF free, the resources should be shifted to further counting and undertaking the morbidity burden including those who don't care for LF. Infection control by proper symptomatic treatment followed by Sequential Compression therapy, Twisting Tourniquet therapy and Bandaging for morbidity control should be done by Government through proper training to doctors and paramedics.

Limitation

Since this study was a retrospective descriptive study, we did not analyze such as the correlation between LF and participant's background (salary, media exposure, etc).

Recommendation

- To raise general population awareness, detail information regarding LF, which should be disseminated through mass media of the country (radio, television, newspaper), and social networking (Facebook, Twitter, etc.). Posters, festoons, informational leaflets, booklets should be left as well.
- Donors should come forward for financial support for these poor LF patients and their families.

- Establish a national LF register and referral center in Community Clinic (CC), which leads to a digital LF patient database and issue identity card to ensure the privilege of getting care, rehabilitation support.
- Training of health personnel in the prevention, community, and home-based care. Management and rehabilitation for LF (skin care, hygiene, nutrition management, rehabilitation, use of footwear, etc).
- Support should be given to Savar Filaria and General Hospital to continue its morbidity control services by Sequential Compression therapy, Twisting Tourniquet therapy and Bandaging along with human resource development.

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