

A Qualitative Study on the Feasibility and Benefits of Foot Hygiene Measures Practiced by Patients with Brugian Filariasis

*R. K. Shenoy, * T. K. Suma ** and V. Kurnaraswami ****

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ABSTRACT

Disability alleviation is an important component of Global Programme for Elimination of Lymphatic Filariasis'. In Brugia malayi infection the disability is largely due to acute attacks of adenolymphangitis (ADL), which frequently prevent patients from attending their normal activities, causing much suffering and economic loss. The foot care programme has been shown to reduce the frequency and severity of these episodes. In the present study we used semi-structured interviews to evaluate the impact of the foot care in 127 patients with brugian filariasis. They were previously trained in this procedure and were advised to practice it regularly, unsupervised. All except one could recollect the various components of foot hygiene and were practicing it regularly. They were aware of the factors causing ADL attacks and were able to avoid them. Majority (95.2%) expressed their happiness with the relief provided by foot care, which prevented or reduced the ADL episodes. The motivation was such that they transmitted this knowledge to others suffering in the community and even physically helped them to carry out foot care. This study fully endorses the advocacy of foot care programme as an easy to carry out, effective, sustainable and economically feasible procedure to prevent acute ADL attacks.

Key words: Brugginn filariasis, Acute adenolymphangitis, Lymphoedema, Disability: Foot care

INTRODUCTION

Lymphatic filariasis (LF) is a major health problem in many tropical countries and 120 million people are infected worldwide. Out

of them 42.81 million have clinical manifestations in the form of lymphoedema or hydrocoele.¹ This disease undermines the social and economic well being of the

*Former Professor and Head of Dept. of Medicine Chief, Filariasis Chemotherapy Unit T.D.Medical College Hospital. Alappuzha, Kerala. India 688011

**Assistant Professor of Medicine T.D.Medical College Hospital Alappuzha, Kerala. India 688011

***Senior Deputy Director. Tuberculosis Research Centre Mayor Ramanathan Road. Chetput Chennai, India 600031

affected individuals and their families² An international task force has identified LF as one of only six potentially eradicable diseases³ Subsequently, a global programme has been launched to eliminate LF as a public health problem by the year 2020.⁴ The 'two pillars' of the elimination programme are (i) interruption of transmission of LF through annual mass treatment of endemic communities with anti-filarial drugs for 4-6 years and (ii) alleviation and prevention of suffering and disability caused by the disease.^{5,6}

In LF, the early and consistent pathology caused by the adult filarial worms is dilation of lymphatic vessels (lymphangiectasia).⁷ Once established, this underlying lymphatic damage appears to be irreversible even after treatment.⁸ Lymphangiectasia impairs the function of lymph vessels and makes the affected limb prone to secondary bacterial infection.^{9,10} These infections give rise to recurrent attacks of acute adenolymphangitis (ADL), which hasten the progression of lymphoedema.¹¹ The precipitating cause of these episodes could be any skin lesion in the affected limbs such as injury, fungal infection, chronic paronychia, fissure foot, pyoderma or eczema, which serve as entry points for bacteria.¹² Therefore prevention of bacterial infection is important to avert ADL and arrest progression of disease. It has been shown that the simple and easy to carry out 'foot care programme' achieves this objective. This foot hygiene technique consists of washing the affected limb every night with soap and water; keeping the limb dry; applying salicylic acid ointment to webs of the toes, nails and sides of the feet every night; clipping the nails

regularly and applying local antibiotic cream when necessary. While lying down the foot end of the bed is kept elevated and footwear used regularly.^{12,13}

In lymphatic filariasis caused by *Brugia malayi*, the main disability is the lymphoedema of the limbs, mostly involving the legs below the knee and upper limbs distal to elbow.¹⁴ But it is the recurrent acute ADL attacks that cause most of the suffering in these patients. Studies have shown that ADL episodes not only cause acute short term disability, but also contribute to long term disability by aggravating the lymphoedema of LF.^{11,15} So alleviation is best achieved in this disease by preventing or reducing the number of such ADL attacks. Towards this the regular practice of foot hygiene by these patients is proved to be effective.¹⁶ However, information on the community acceptance and feasibility of these disability alleviation measures is scanty. In the present study we evaluate the impact of the foot hygiene method in patients with lymphoedema caused by *Brugia malayi*.

SUBJECTS AND METHODS

The subjects evaluated in this study were those who had previously participated in a double blind placebo controlled trial at this centre. In the above study a total of 150 patients with lymphoedema due to brugian filariasis, who had at least two or more ADL attacks during the preceding one-year, were recruited. They were treated either with penicillin, DEC, local antibiotics or placebo for one year.¹³ All of them were well trained to practice a comprehensive foot care programme on a regular basis. They were followed up for another year in which the

foot care alone was advocated and this was supervised. At the end of this two-year study period these subjects were instructed to continue the foot care programme to prevent recurrence of ADL and they were not under any supervision. These patients were recalled for the present evaluation study after they had completed around two years of unsupervised foot care.¹⁶

The impact of the unsupervised foot hygiene was assessed through semi-structured interviews. The interview was designed to elicit information on the following issues:

- (i) Recollection of various components of foot hygiene practiced by the patients.
- (ii) Whether the procedure was practiced regularly.
- (iii) Difficulties encountered, if any, in adopting and practicing foot care.
- (iv) Awareness regarding the skin lesions in the affected limb causing 'the fever' and the significance of preventing them.
- (v) Difference they had noticed after practicing foot care.
- (vi) The type, kind and quality of relief, if any, provided by this treatment.
- (vii) Whether they were helping or instructing others in the community who had this disease and.
- (viii) Whether they had any suggestion to improve this modality of treatment.

The interviews were conducted by the social scientists in the local language, *Malayalam* and the notes recorded during these interviews were then expanded and transcribed on the same day. The interviews

were then translated into English and entered into computer. The data were analyzed using Textbase Beta programme.

The Institutional Ethics Committee of the TD Medical College Hospital, Alappuzha had approved the present study to assess the impact of the foot hygiene measures on these patients.

RESULTS

A total of 127 patients who had successfully completed the original trial were interviewed approximately two years (mean 25 ± 7 months) after they had been practicing the foot hygiene measures unobserved.¹⁶

Practicing foot hygiene: Almost all patients except one were able to recollect the various components of foot hygiene taught to them during the initial training programme. They were regularly washing and cleaning the affected limb at least once daily in the evening hours or before retiring to sleep. Three subjects mentioned that they could not wash their legs by themselves as instructed, because they were unable to reach their feet due to the immensity of the swelling and help was not available. However, while sleeping at night almost one third of the patients were not able to keep their legs in elevated position by raising the foot end of the cot, since it disturbed their sleep. While a vast majority of them (85%) were using footwear regularly, some with advanced stages of lymphoedema were unable to do so due to the large size of feet.

All subjects mentioned that they did not specially incur any additional expenditure to practice regular foot care. They were receiving the antifungal ointment free of cost from the filariasis out patient section of the

Medical College Hospital. Only when they had an injury or infection they were required to purchase the antiseptic cream.

Local terms for the disease

manifestations: In Kerala State the local language of people is Malayalam in which there are specific names for all forms of filarial disease. The swelling of the limbs is called *Manthu* and the terms *Manthupani*, *Vathapani* or *Kazhalapani* indicate the ADL attacks. *Pani* implies fever and *Kazhala*, the swelling of inguinal lymph nodes. The interdigital fungal infections are locally known as *valamkadi*.

Awareness of causation of ADL: These patients were aware of the factors that precipitated the ADL attack. Many of them mentioned that the *Manthupani* followed any injury in the affected limb or fungal infection in the space between their toes, especially during the rains or when they had to work standing in water logged place. Other precipitating factors cited were scratching the affected limb, strenuous work, sleep deprivation and inadequate food intake. This knowledge had helped them to avoid such causes and thus prevent ADL episodes. One patient commented as follows:

"I used to get 'Vathapani' whenever I had an injury in the swollen limb, may be even a thorn prick. During rainy season I get the fever when I have 'Valamkadi' in the space between the toes or between the fingers while washing cloths or utensils.

I don't get 'Vathapani' now because I am careful not to injure my limbs. It is with great care that I even cut my nails, avoiding any injury".

From their participation in the initial trial they knew that avoidance of moisture in between the toes was important in preventing ADL episodes. This is evident from the following remarks of a patient:

"There is no gap between my toes due to the swelling. So I keep some folded piece of cloth between the toes before going to bed to avoid moisture. If I forget to do that there will be 'Valamkadi' and itching between the toes. When I scratch, the skin peels off and 'Vathapani' would follow. After treatment here I do not have such problem".

Relief following foot care measures: Many patients expressed that they were happy with the relief provided by the foot care programme. One patient said:

"It is only because I carry out these instructions (on foot care) regularly, that I am saved.

Otherwise, my leg would have been in a worse condition"

The benefit of foot hygiene was described by a 49 year old female patient as follows:

"After this treatment (foot care), during the last 4 years I did not have the 'Manthupani' like I used to get before. I am able to carry on with my work. I have no debts now. Before coming here, whenever I had 'Manthupani' I had to incur debt for the treatment".

Helping others having the disease: Prevention of ADL episodes by foot care was well accepted by these patients because of the perceivable benefits. They were so much motivated that many of these patients instructed others having the disease in their

community to adopt this foot hygiene and some even physically helped them to wash their legs with soap and water. A patient described her interaction with another patient in the community:

"I have helped a person by washing his legs, when I saw that he had huge swellings on both legs with infection. He had maggots in the ulcers on the 'Manthu' on his legs. I washed his legs well with my own hands using soap and water and applied the ointment, which was given to me from here, in all the folds of the swellings. The relief of pain and itching he had, after I did this was remarkable".

Many patients suggested that the availability and benefits of this foot care treatment should be made known to all the affected persons in the community. Three patients mentioned that if this method of treatment were instituted in the early stages of the disease itself, it would be more beneficial. They had genuine concern about the younger generation developing this horrid disease and suggested that steps should be taken to prevent this disease in the younger age.

DISCUSSION

Among the clinical manifestations of brugian filariasis the most dramatic and disabling one is the recurrent acute ADL affecting the swollen extremities. Previous reports from the Sherthalai taluk of Alleppey district have indicated that individuals with *B. malayi* infection suffered on an average 2.2 episodes of ADL every year.¹⁷ Even though their frequency varied from four to six per year, it was not unusual to have several such episodes in higher grades of oedema.^{12,13} The resulting

economic loss is considerable because patients have to abstain from attending their regular work for one or more weeks during each ADL. It is estimated that nearly 160,000 mandays are lost every year on this score in an area endemic for *B. malayi* filariasis.¹⁸ Further, each ADL worsens the lymphoedema, which in turn makes the individual prone to more such episodes, thus setting up a vicious cycle.

Thus the cornerstone of disability management in brugian filariasis is to treat ADL adequately and prevent further attacks. This could be achieved through the local care of the affected limbs.^{12,13} Lymphatic filariasis is more prevalent in the economically handicapped regions of the tropics and often infects the poorer sections of the population. The preventive measures recommended should be effective, simple, easy to adopt and available at low cost, so that there is community acceptance for this modality of intervention. The foot care programme is meant to satisfy these requirements. It has been demonstrated in other endemic areas that even the minimal intervention with hygiene and skin care improved the quality of life of patients with LF.¹⁹

The results of present study clearly indicate the ready acceptance of the foot hygiene measures by the patients. They were able to practice it regularly without incurring any additional expenditure. Only a few had difficulty in adhering to certain components of the programme like elevation of the affected limbs due to the discomfort involved and in the use of well fitting foot wear due to the enormity of the swelling. This is in contrast to the observations reported in another recent study from South India where

the awareness of the foot hygiene was very poor among the evaluated subjects. This report also stressed the urgent need for proper training of both the patients and the health providers in disability management, which is an integral part of the strategy for LF prevention.²⁰ The better compliance of the subjects in the present study might also be due to the high literacy status of the population of Kerala State apart from the health education they had received during their frequent visits to the clinic for the earlier study.^{13 21}

Similarly the patients evaluated presently were quite aware of the factors that caused ADL and were able to prevent them. They knew that even trivial injuries in the affected limb, scratching or fungal infection in the webs of the toes occurring specially during rains or while working in water logged places could precipitate an ADL. It is well known that frequency of ADL attacks tends to increase during the rainy season.^{12,22} When the toes are swollen, the presence of moisture predisposes to fungal infections between the closely apposed toes, which in turn promotes secondary bacterial infection through the abraded skin.

Nearly one third of the patients reported that they did not have any ADL episode after initiation of foot care, even after four years in some instances. Among others, those who had ADL mentioned that the frequency, severity and duration of such episodes were definitely less than what they suffered previously. This improved their state of health: the ability to carry on with their jobs and in turn their earning capacity. Many patients perceived this as a major benefit of practicing foot hygiene. This fully endorses

the advocacy of foot care programme as an easy to carry out, effective, sustainable and economically feasible procedure to prevent ADL.¹⁶

The acceptance of the foot care programme by these patients is further strengthened by the observation that they volunteered to spread this knowledge among others suffering from LF in their villages. Some even physically helped others by washing, cleaning and applying medication to their oedematous legs. They wanted this message of disability management to reach all those who have LF and expressed the hope that the foot care, if practiced in the early stages of the disease would prevent the progression or occurrence of the deformity especially in the young.

The above account of the patients suggests that they would be able to practice the simple and easy to carry out foot care measures without much expenditure. Their perception of factors precipitating ADL helped them to avoid further acute attacks. The perceived benefits appeared to be considerable and hence many patients were likely to continue these measures, as shown by this study. This also emphasizes the value of proper education of the endemic population. However, there is a definite need to develop trained manpower to transfer this knowledge on morbidity management to the affected communities.

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