WHO MDT FOR LEPROSY- CURES, PREVENTS DISABILITIES AND TRANSMISSION

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ABSTRACT

Leprosy is properly the oldest disease known to mankind. In India leprosy is known since ancient times a Kustha Roga and attributed to punishment or curse from God. Modern day leprosy dates from 1873 when Hansen of Norway, discovered Mycobacterium lepral. Leprosy (Hander's disease) is a chronic infectious disease caused by M. Lepral. For long years, there was no effectual remedy for leprosy. It seemed that the only way to handle the patients was to isolate them for life in special institutions. The introduction of Sulphone drugs in the treatment of leprosy in 1943 marked the beginning of a new era the era of case finding and domiciliary treatment.

Leprosy in the majority of instances is diagnosable on the basis of a proper clinical examination alone. Therefore, a set pattern must be followed in the examination of a patient for the presence of leprosy. This procedure is called "case taking." For this study all the100 patients was selected by case taking pattern which comprises of collection of bio data of the patient such as name, age, sex, occupation and place of residence, family history of leprosy, history of contact with leprosy cases, details of previous history of treatment for leprosy if any, presenting complaint or symptoms.

Keeping this in mind the present study was conducted which aims at to eliminate leprosy we need to detect all patients and are them with MDT. (7,16,18) In or study it clearly intended that If detected early and treated with MDT leprosy will not lead to disabilities. So the best way to prevent the spread of leprosy IS to treat all patients with MDT. The percentage of completely cured patients are 96%. [Table 2] Only 4% of patients have some minor disabilities according to WHO grading system .out of all 4% patients only 3 patients with MB leprosy develops Grade 1 disabilities in eyes and only 1 patient develop Grade 1 disabilities in hands. [Table 2]

MDT is very safe and effective in curing leprosy by adequate treatment that implies the completion of a regimen of multidrug therapy with a recommended period of time. The drug stop the spread of leprosy & early treatment prevents disabilities.

BACKGROUND

Leprosy is an infectious disease caused by *Mycobacterium leprae*, an acid-fast, rod-shaped bacillus. The disease mainly affects the skin, the peripheral nerves, mucosa of the upper respiratory tract, and the eyes. Leprosy is curable and treatment in the early stages can prevent disability**.** Leprosy is an age-old disease, described in the literature of ancient civilizations. Throughout history, people afflicted have often been ostracized by their communities and families.

Leprosy is properly the oldest disease known to mankind. In India leprosy is known since ancient times a *Kustha Roga* [1] and attributed to punishment or curse from God. Throughout history, leprosy has been feared and misunderstood. The origin of leprosy is unknown. The disease was first described around 600 BC. There was a debate in 1960s and 1970s about the choice of appropriate name for this disease - leprosy, lepra, Henson's disease or Hanseniasis. (2). For long years, there was no effectual remedy for leprosy. It seemed that the only way to handle the patients was to isolate them for life in special institutions. The disease is an important cause of crippling deformities. The affected people have high psychosocial problems such as divorce unemployment, and

displacement from their native place of residence The introduction of Sulphone drugs in the treatment of leprosy in 1943 marked the beginning of a new era the era of case finding and domiciliary treatment.

Although leprosy was managed differently in the past, the first breakthrough occurred in the 1940s with the development of the medicine dapsone. The duration of treatment lasted many years, often a lifetime, making compliance difficult. In the 1950s, resistance of M. leprae to dapsone, the only known anti-leprosy medicine at that time, became widespread. In the early 1960s, rifampicin and clofazimine were discovered and subsequently added to the treatment regimen, which was later labelled as multidrug therapy (MDT).

In 1981, WHO recommended MDT. The currently recommended MDT regimen consists of three medicines: dapsone, rifampicin and clofazimine. This treatment lasts six months for pauci-bacillary and 12 months for multi-bacillary cases. MDT kills the pathogen and cures the patient.In 2018, WHO reviewed available evidence on key issues related to elimination of leprosy and developed 'WHO guidelines for the diagnosis, treatment and prevention of leprosy', recommending a three-drug regimen (rifampicin, dapsone and clofazimine) to both pauci-bacillary and multibacillary types of leprosy. The guidelines also introduced prevention of leprosy through single-dose of rifampicin for eligible family and social contacts. If detected early and treatment with MDT, Leprosy will not lead to disabilities. Leprosy will be eliminated when we detect all patients and are them by using multidrug therapy (MDT).

The best way to prevent the spread of leprosy is to treat all patients with MDT. Leprosy diagnosis and treatment available free of charge at all health centers. (4,5,6). Leprosy mainly affects the skin, the peripheral nerves, mucosa of the upper respiratory tract, and the eyes. The bacillus is likely transmitted via droplets, from the nose and mouth, during close and frequent contact with untreated cases. Leprosy can be cured. MDJ Kills the bacteria and stops the spread of the disease. Leprosy is after called a "Social disease". There are numerous social factors which favor the spread of leprosy in the community such as parents and poverty related circumstanced (e.g. overcrowding poor housing, lack of education, lack of personal hygiene) and above all, fear, guilt and unfounded prejudices regarding the disease. The social stigma of leprosy is due to the deformities it can cause. Over the centuries a "legend" has grown round leprosy that it is highly contagious and that it is incurable.

Study Setting:

The study comprised of 100 patients of leprosy out of which 44 have paucibaillary leprosy.

The criterion for selection of cases was as follows:

100 patients of leprosy who were have positive signs of leprosy.

Duration of study 14 months. All the patients are studied for 14 months 2018-2019

A leprosy patient is someone who has a skin patch or patches with a definite loss of sensation and has not completed a full course of treatment with multidrug therapy.

Data Collection:

Leprosy in the majority of instances is diagnosable on the basis of a proper clinical examination alone. Therefore, a set pattern must be followed in the examination of a patient for the presence of leprosy. This procedure is called "case taking." For this study all the100 patients was selected by case taking pattern which comprises of collection of bio data of the patient such as name, age, sex, occupation and place of residence, family history of leprosy, history of contact with leprosy cases, details of previous history of treatment for leprosy if any, presenting complaint or symptoms.

Leprosy is classified as paucibacillary (PB) or multibacillary (MB), based on the number of skin lesions, presence of nerve involvement and identification of bacilli on slit-skin smear. The standard treatment for leprosy involves the use of multiple (two or three) drugs; the duration of treatment, dose and number of antibiotics depend on the type of leprosy (PB or MB) and age of the patient (adult or child). Strategies to prevent leprosy include vaccination or use of prophylactic antibiotics among persons with exposure.

Diagnosis of leprosy

The guidelines recommend no additional tests in addition to standard methods for diagnosis of leprosy: the diagnosis of leprosy remains based on the presence of at least one of three cardinal signs: (i) definite loss of sensation in a pale (hypopigmented) or reddish skin patch; (ii) thickened or enlarged peripheral nerve with loss of sensation and/or weakness of the muscles supplied by that nerve; or (iii) presence of acid-fast bacilli in a slit-skin smear. The clinical diagnosis of early leprosy and PB leprosy can be a challenge. Therefore, a number of serological and other laboratory assays have been developed to supplement clinical diagnostic methods. However, enzyme-linked immunosorbent assays (ELISA) and lateral flow assays are associated with low diagnostic accuracy for PB leprosy. Although some polymerase chain reaction (PCR)-based assays are associated with higher diagnostic accuracy, they lack standardization, are not commercially available, and would be difficult to perform in most primary health-care settings.

Physical Examination:

- A thorough inspection of the body surface (skin) to the extent permissible in good natural light for the presence of leprosy patches.
- Palpation of the commonly involved peripheral and cutaneous nerves for the presence of thickening and / or tenderness.
- Testing for loss of sensation for heat cold pain and light touch in the skin patches and paresis or paralysis of the muscles of the hands and feet leading to the disabilities or deformities.
- Testing of eyes for regular blinking movement, corneal sensation testing and testing for vision for any visual impairment.

Discussion

Leprosy is a communicable disease caused by bacteria. It mainly affects the skin and peripheral norms. It progresses slowly with an average incubation period of 3 years. Leprosy can affect all ages and both sexes. Leprosy is clinically characterized by one or more of the following cardinal factories:

a) Hypo pigmented patches.

b) Partial or total loss of cutaneous sensation in the affected areas (the earliest sensation to be affected is usually light touch)

c) Presence of thickened nerves.

Leprosy can be cured. MDT kills the bacteria and stops the spread of the disease. Leprosy patients can lead completely normal lives. If detected early and treatment with MDT, leprosy will not lead to disabilities. Leprosy will be eliminated when we detect all patients and are them by using multidrug therapy (MDT). The best way to prevent the spread of leprosy is to treat all patients with MDT. Leprosy diagnosis and treatment available free of charge at all health centers. (4,5,6) Keeping this in mind the present study was conducted which aims at to eliminate leprosy we need to detect all patients and are them with MDT. (7,16,18)

The standard adult treatment regimen for MB leprosy is: Treatment with Multidrug Therapy

Rifampicin: 600 mg once a month

Clofazimine: 300 mg once a month, and 50 mg daily

Dapsone: 100 mg daily

Duration: 12 months (12 blister packs of 28 days each)

The standard adult treatment regimen for PB leprosy is:

Rifampicin: 600 mg once a month

Dapsone: 100 mg daily

Duration: 6 months (6 blister packs of 28 days each)

Standard child (ages 10–14 years) treatment regimen for MB leprosy is:

Rifampicin: 450 mg once a month

Clofazimine: 150 mg once a month, and 50 mg every other day

Dapsone: 50 mg daily

Duration: 12 months (12 blister packs of 28 days each)

The standard child (ages 10–14 years) treatment regimen for PB leprosy is:

Rifampicin: 450 mg once a month

Dapsone: 50 mg daily

Duration: 6 months (6 blister packs of 28 days each)

Four different blister packs are available: PB adult, PB child, MB adult and MB child.

Five simple steps to start MDT:

1. Count the number of skin patches in order to classify the type of leprosy into PB (1-5 patches) or MB (more than 5 patches). If in doubt, classify as MB.
2. Inform the patient and anyone accompanying the patient about the disease and its treatment. Encourage them to ask questions and clear up any doubts.
3. Give the patient the first dose at the health center. Show them which drugs from the MDT blister pack should be taken one a month and which every day.
4. Give the patient enough blister packs to last until their next visit. Arrange the time and place of the visit. If it is difficult for them to come to the health center, give them the full course of treatment.
5. Fill out the patient card.

Table-1 . Age group and Sex and Type of Leprosy for the Treatment with MDT in study population Table-1

Age Group	Study Group			Type of Leprosy			
	M	F	Total	M		F	
				PB	MB	PB	MB
<10	0	2	2	0	0	2	0
11-20	0	6	6	0	0	4	2
21-30	8	2	10	6	2	2	0
31-40	24	14	38	16	8	12	2
41-50	28	8	36	22	6	8	0
51-60	6	2	8	4	3	0	1
>60	0	0	0	0	0	0	0
TOTAL			100				

Table – 2

Multidrug Therapy cures leprosy, stops transmission and prevent disabilities.

Age Group	No. of Patients	Cured	Disabilities	Type of disabilities Eyes	Type of disabilities Hands &Feet
<10	2	2 (100%)	NIL		
11-20	6	6 (100%)	NIL		
21-30	10	10 (100%)	NIL		
31-40	38	36 (94.7%)	2(5.2%)	2(Grade 1)	(Grade 0)
41-50	36	34 (94.4%)	2(5.5%)	1(Grade 1)	1(Grade 1)
51-60	8	8 (98%)	NIL		
>60	0		NIL		
TOTAL	100	96%	NIL		

Table -3

WHO Disability grading 1998

Eyes

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Grade 0: no eye problem due to leprosy: no evidence of visual loss.

Grade 1: Eye problem due to leprosy present, but vision not severely affected as a result of these (vision6/60 or better; can count fingers at 6 m)

Grade 2: Severe visual impairment (vision: worse than 6/60: inability to count fingers at 6m) also includes lagopthalamos, iridocyclitis and corneal opacities.

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Hands and Feet

Grade 0: No Anaesthesia, no visible deformity or damage.

Grade 1: Anaesthesia present, but no visible deformity or damage.

Grade 2: visible deformity or damage present.

CONCLUSON

In or study it clearly intended that If detected early and treated with MDT leprosy will not lead to disabilities. So the best way to prevent the spread of leprosy IS to treat all patients with MDT. In our study sample patients of different age group (> 10, to >60yrs) [Table 1] and both type of leprosy patients (Paucibacilary and Multibacilary leprosy) are included. [Table 1]. The percentage of completely cured patients are 96%. [Table 2] Only 4% of patients have some minor disabilities according to WHO grading system .out of all 4% patients only 3 patients with MB leprosy develops Grade 1 disabilities in eyes and only 1 patient develop Grade 1 disabilities in hands. [Table 2] So it is advised that early detection Treatment with Multidrug Therapy completely cures and prevent disabilities in leprosy patients. In our study only some anesthesia is left in hand after treatment in only 1 patient (1%) and affected blinking movement of eye in 3 patients (3%) no affected vision.

A high proportion of grade 2 disability (visible deformity) is indicative of delay in detection of leprosy and leprosy is one of the major causes of preventable disability Patient delay is the major reason for risk of disability (G2D/G1D) among adult leprosy patients. A patient delay of more than 3 months from the notice of first symptom is a significant indicator for the disabilities among adult leprosy patients. Early case detection campaigns like active surveys in endemic spots should be done periodically as this can reduce delays and promote early diagnosis.

MDT is very safe and effective in curing leprosy by adequate treatment that implies the completion of a regimen of multidrug therapy with a recommended period of time. MDT is a shorter duration of treatment, better patient compliance, high cure rate The drug stop the spread of leprosy & early treatment prevents disabilities. Patients who have successfully completed their treatment are cured even if they have deformities and patients can lead perfectly normal lives. Even if sometimes some spots are left on the skin but these have less effect on the daily lifestyle of the patient only the patient has to be careful to injuries to these leprosy spots.

Even today in spite of scientific information available about leprosy, this legend is deeply rooted in the minds of most people at all levels of society with the result. That social ostracism is apparent everywhere. This has led patients to hide their early lesions and therapy delay treatment just at the period when they could be most speedily cured. It is necessary to standardize criteria for diagnosis, cure, and follow-up in the search for more and better evidence to fill existing gaps in information that evaluates new upcoming challenges in leprosy cure. Further studies for the adherence to the treatment and short treatment regimens based in evidence are needed to reach the goal of leprosy elimination.

Summary

Leprosy is an infectious disease caused by the *Mycobacterium leprae* and is one of the major causes of preventable disability. In the recent years there has been an increase in the number of new leprosy patients with disability in India. People affected by leprosy often experience severe stigmatization because of its disabling consequences. Despite the availability of health facilities, there continues to be barriers towards leprosy diagnosis and early treatment.

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Abbreviation

BC : Before Christ

PB : Paucibacillary

MB : Multibacilllary

M : Male

F : Female

MDT: Multi Drug Therapy

G 2D: Grade 2 Disability

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