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"A Study of Clinical Profile of Leprosy in Post Leprosy Elimination Era"

Dr.G.Swarnakumari[1], Dr.T.V.Narasimha Rao[2], Dr.S.Ngeswaramma[3], Dr.T.Vani[4], Dr Rammohan Ch[5], Dr.Ramadasu Naik Neenavathu[6].
[1,2,3,4]*Department of Dermatology, Venereology and Leprosy, Guntur Medical College, Andhra Pradesh, India*

Abstract:
Background*: Leprosy is a chronic granulomatous infectious disease caused by Mycobacterium leprae, primarily affecting the skin and peripheral nerves. A long course of the disease coupled with stigmata attached to it often create grave socio-economic problems. In December, 2005, India announced elimination of leprosy as public health problem at national level under the National Leprosy Eradication Programme. But still more number of new cases are still being registered in India . Increased number of new cases were deteced during the year 2011 – 2012 as compared to 2010 – 2011.So a study was conducted on the clinical profile of newly diagnosed leprosy cases and patients already diagnosed and on treatment,in this post leprosy elimination era.*
Materials and methods*: The study group was drawn from patients attending the outpatient and inpatient departments of Dermatology, Venereology and Leprosy (DVL) at Government General Hospital, Guntur ,Andhra Pradesh for a period of one and half year, from January 2013 to June 2014.A total of 194 leprosy cases were enrolled for the study.*
Study design*: Prospective observational study.*
Results*: In the present study the youngest patient was 3 yrs old and the oldest was 85 yrs. The maximum number of patients belonged to the 20-29 years age group. The male to female ratio was 2.3:1.Out of 194 cases,102 were diagnosed as Borderline tuberculoid leprosy,30 as pure neuritic leprosy,23 as lepromatous leprosy,13 boderline lepromatous leprosy, 3 as mid bordeline leprosy ,.3 as indeterminate leprosy and 2 as tuberculoid leprosy.10 patients presented with type 2 lepra reaction and 8 presented with type 1 lepra reaction. Majority of the patients belonged to low income group. Deformities were mainly observed in borderline tuberculoid and lepromatous leprosy patients.*
Conclusion *Most new cases detected are may be hidden prevalent cases.But this may also suggests active infection in the community and warrants resurgence of leprosy. This is probably due to fixed duration therapy of one year to multibacillary cases and discontinuation of surveilllance activities .we should not be complacent at this stage because it may become a serious health problem again. By early detection and increasing the duration of therapy and increasing community awareness utilising Informatoin, Education and Communication (IEC) at all levels, we can hope to achieve the dream of leprosy free India.*
Key words*: Leprosy, post leprosy elimination era, new cases , community awareness.*

I. Introduction

Leprosy(Hansen's disease; Hanseniasis) is a chronic disease of man (infectious in some cases) caused by Mycobacterium leprae (M.leprae). It primarily affects the peripheral nervous system and secondarily involves skin and certain other tissues , notably the eye, the mucosa of the upper respiratory tract, muscle ,bone and testes.[1,2] Leprosy is considered important mainly because of its potential to cause permanent and progressive physical deformities with serious social and economic consequences. Leprosy occurs in all ages ranging from early infancy to very old age. Male to female ratio is 2:1 There are numerous social factors which favour the spread of the disease in the community such as poverty and poverty related circumstances (eg: overcrowding, poor housing ,lack of education and lack of personal hygien.).

Leprosy is regarded as a special disease because **1**. Slow, generation time of the bacillus(two weeks). This results in long incubation period (average 5-7 yrs),a very slow development of pathology, a slow and insidious clinical evolution and unclear epidemiological pattern .**2**. The bacillus has never been conclusively grown in artificial medium and consequently the bacteriology of leprosy was greatly delayed until 1960 when limited growth in mice was achieved. **3**. This is the only bacillary disease with a predilection for nerve tissue. **4** .Man alone gets leprosy ,and is the reservoir of infection , although naturally infected armadillos have been found in the Southern USA and primates in Africa. **5**. Leprosy is the best example of a disease which has a spectrum from complete absence of resistance by the host to effective immunity, which is often accompanied by extreme and destructive hypersensitivity. In lepromatous leprosy bacillary invasion is such that the number of bacilli in the dermis can reach 10^9 per gram tissue.In tuberculoid leprosy on the other hand the cell mediated response to the

presence of bacilli is so violent that it continues in the presence of a bacillary population which is too small to be detectable .**6**. Leprosy deforms and disables but seldom kills, so that those it has crippled live on ,getting steadily worse ,their deformities visible to all the community.[3.2].

M.leprae has a preference for temperature less than 37 ^{0} C for its optimal growth.so it predominantly involves skin, nasal mucosa and peripheral nerves where the temparature is lower than core body temparature.

Transmission: Untreated multibacillary cases are the most important source of infection compared to pauci bacillary cases

Classification: With the WHO guidelines for leprosy control programmes, the classification assumes utmost importance to decide upon the line of treatment. A single classification to meet everyone's expectation though desirable may be very difficult to arrive at.

The well accepted classifications include new IAL (Indian Association of Leprologists), Ridley -Jopling, and WHO classification for leprosy control.

The new IAL classification (1981) ;1. Lepromatous (L), 2. Tuberculoid (T), 3. polyneuritic (P), 4. Bordeline (B), 5. Indeterminate (I)

Ridley – Jopling classification : It is essentially a five group classification with two polar forms-tuberculoid (TT) and lepromatous (LL) are the two extremes which are more or less immunologically stable. Between the two polar forms lies a big immunologically unstable borderline group which has subdivided into three categories –borderline tuberculoid (BT) ,mid borderline or borderline borderline (BB) and borderline lepromatous (BL).

The WHO classification (1998) for leprosy control programmes:

The patients are categorised into 1. Paucibacillary single lesion leprosy (SLPB) 2.Paucibacillary leprosy (2-5 skin lesions) 3. Multibacillary leprosy - six or more skin lesions and also smear positive lesions.

Presently in India the number of nerves involved is also taken into consideration while categorising the patients into paucibacillary and multibacillary types as per the criterion laid down under the National Leprosy Eradication programme(NLEP) of government of India.

Classification under NLEP, India (2009)

Sr.No.	Characteristics	PB	MB
1.	skin lesions	1-5 lesions	6 and above
2.	Peripheral nerve involvement	No nerve /only one nerve with or without 1-5 lesions	More than one nerve irrespective of the number of skin lesions
3.	Skin smears	Negative at all sites	Positive at any site

Note: if skin smear is positive, irrespective of number of skin and nerve lesions ,the disease is classified as MB leprosy but if skin smear is negative it is classified on the basis of the number of skin and nerve lesions.

Presently, the WHO classification for treatment purposes and Ridley-Jopling classification for academic and research work is being followed satisfactorily.

Rare variants of leprosy : Few unusual forms or expressions of leprosy do not fit into the standard classification of disease.These are 1.Lucio leprosy 2.pure neuritic leprosy 3.Histoid leprosy 4.Lazarine leprosy.

Reactions in leprosy: Reactions are acute inflammatory episodes which occur during the course of leprosy. Reactions are principally two types:

1.Type- 1 reaction, also referred to as upgrading (reversal reaction) 2. Type- II reaction or erythema nodosum leprosum (ENL) reaction.

Unattended neuritis in leprosy can result in a wide range of nerve function impairment (NFI) especially of hands, feet and eyes, ultimately leading to anaesthesia, muscle weakness ,deformities, neuropathic ulcers and resulting disabilities.

WHO Study group, in 1981 recommended multi drug therapy (MDT) regimen for 24 months or till smear negativity in MB leprosy and for six months in PB leprosy.

Multibacillary leprosy : recommended regimen for adults is:

Rifampicin(600 mg) once a month supervised ,Dapsone (100mg) daily self-administered and Clofazamine (300mg) once a month supervised and 50 mg daily self-administered .Duration is 24 months.

Paucibacillary leprosy recommended regimen for adults is:

Rifampicin(600mg) once a month supervised and Dapsone (100mg) daily self-administered.Duration is 6 months. Children should receive proportionately reduced doses of the above drugs.

In 1997, the WHO Expert Commitee on leprosy and NLEP recommended Fixed Duration Treatment (FDT) – 12 months for MB leprosy and 6 months for PB leprosy in the programme. This was not accepted by all clinicians. Their fear is based on the report from Bamako , Mali and JALMA, Agra who reportd high relapse rates in patients with Biological index more than 4.0 (10-100 bacilli in an average field) following FDT.

This fear is still haunting many clinicians (and even policy makers) who do not favor stopping MDT at the end of 12 months.

Rationale for shortening the duration of MDT to 12 months is:to facilitate better treatment compliance without significantly compromising the efficacy, and that rifampicin kills over 99.9%of the viable organisms with three monthly doses .The major role of the dapsone – clofazamine component in MDT is to ensure the elimination of rifampicin resistant mutants from the bacterial population.[3]

Disease prevalence is defined as the number of patients diagnosed with leprosy and registered for the treatment over the course of a year.

Elimination of leprosy is prevalence rate of less than one case per 10,000 population , where leprosy is considered to cease as public health problem .

In India , efforts to control leprosy began in 1954 when the National Leprosy control programme (NLEP) was launched. MDT for leprosy was introduced in India from 1983 onwards. India reached elimination target of leprosy by the end of year 2005.

In India , the National prevalence rate which stood at estimated 57.6 per 10,000 population in 1981; has come down to 0.72 per 10,000 by March 2009.The disease ,though eliminated it is not eradicated.

Aims and Objectives of the study : 1. To identify new leprosy cases amongst the patients attending the DVL department 2 .to identify the leprosy cases who are on the treatment during the study 3. to study the clinical profile of the patients identified.

II. Materials and Methods

The study group was drawn from the outpatient and inpatient departments of DVL at Government General Hospital , Guntur ,Andhra Pradesh, for a period of one and half year from January 2013 to June 2014 .A total of 194 leprosy cases were enrolled for the study .

Study design : prospective, observational study.

Methodology: After obtaining clearance and approval from the institutional ethical committee, 194 cases were included for the study. Informed and written consent was taken from patients and the clinical data was recorded .Detailed history taking and complete clinical examination was done. Clinical photographs were taken at the same time sitting. A detailed history was taken with particular reference to the duration, initial site of appearance of lesion, extension of lesions , symptoms, history of underlying systemic conditions like diabetes mellitus , hypertension , tuberculosis was obtained. All patients were investigated with routine haematological and biochemical investgations. Skin biopsy, slit skin smear examination for acid fast bacill and HIV screening were performed as and when needed. The collected data was analysed.

III. Results

Table – 1: Age Distribution

	TT	BT	BB	BL	LL	PN	IL	Type1	Type 2	Total
Lessthan10	-	1	-	-	-	-	2	-	-	3 (1.54%)
10 – 19	-	14	-	2	1	2	1	2	1	23 (11.85%)
20 – 29	1	31	2	3	3	8	-	-	2	50 (25.77%)
30 – 39	-	18	-	-	8	3	-	1	1	31 (15.97)
40 – 49	1	19	-	3	6	7	-	1	3	40 (20.61%)
50 – 59	-	7	-	4	2	6	-	2	2	23 (11.85%)
60 – 69	-	7	1	1	2	2	-	2	1	16 (8.24%)
>70	-	5	-	-	1	2	-	-	-	8 (4.12%)
	2	102	3	13	23	30	3	8	10	194

In the present study, the youngest patient was 3 years old and the oldest was 85 years. The maximum number of patients in this study belonged to the 20-29 years age group whereas the least number of patients (3) belonged to the less than 10 years age group.

Sex distribution according to type of disease

The male patients comprised 136 (70.1%) and female patients were 58 (29.89%) . The male to female ratio was 2.3 : 1

Table – 2: Sex Distribution According To Type Of Disease

	Males		Females		Total	
Types	No	%	No	%	No	%
TT	1	0.73	1	1.72	02	1.03
BT	64	47.05	38	65.51	102	52.57
BB	3	2.20	-	-	03	1.54
BL	8	5.88	5	8.62	13	6.70
LL	21	15.44	2	3.34	23	11.85
PN	22	16.17	8	13.79	30	15.46
IL	2	1.47	1	1.72	03	1.54
Type1	6	4.41	2	3.34	08	4.12
Type2	8	5.88	2	3.34	10	5.15
Total	136		58		194	

Clinical diagnosis

Table – 3 : Clinical Diagnosis

Type	Total	Percentage
TT	2	1.03
BT	102	52.57
BB	3	1.54
BL	13	6.70
LL	23	11.85
PN	30	15.46
IL	3	1.54
Type1	8	4.12
Type2	10	5.15

Out of 194 cases 102 (52.57%) patients were diagnosed as having borderline tuberculoid leprosy(BT) , followed by 30 patients (15.46%) as poly neuritic leprosy (PN), 23 (11.85%) as lepromatous leprosy (LL) , 13 (6.7 %) as borderline leprosy (BL) , 10 (5.15 %) as type 2 lepra reaction , 8 (4.12) as type I lepra reaction ,3 (1.54%) as indeterminate leprosy (IL), 3 (1.54%) as borderline borderline leprosy (BL) and 2 (1.03 %) as tuberculoid leprosy (TT).

Socioeconomic status

Table – 4 : Socioeconomic Status

Type	Low Income Group	Middle Income Group	Total
TT	2 (1.28%)	-	2 (1.03%)
BT	89 (57.05%)	13 (34.21%)	102 (68.04%)
BB	2 (1.28%)	1 (2.63%)	3 (1.54%)
BL	10 (6.41%)	3 (7.89%)	13 (6.70%)
LL	16 (10.25%)	7 (18.42%)	23 (11.85%)
PN	22 (14.10%)	8 (21.05%)	30 (15.46%)
IL	2 (1.28%)	1 (2.63%)	3 (1.54%)
Type1	6 (3.84%)	2 (5.26%)	8 (4.12%)
Type2	7 (4.48%)	3 (7.89%)	10 (5.15%)
Total	156	38	194

In this study 156 (80.41%) patients were from low income group whereas 38(19.58%) patients were from middle income group. There were no patients from high income group.

Occupation

Table – 5 : Occupation

	TT	BT	BB	BL	LL	PN	IL	Type1	Type2	Total
Agriculture	1	9	1		1	5	-	-	2	19 (9.8%)
Auto driver	-	4	-	1	2	3	-	-	1	11 (5.7%)
Barber	-	-	-	-		1	-	-	-	1 (0.5%)
Business	-	1	-	-	1	-	-	-	-	2 (1.03%)
Cook	-	-	-	1		-	-	-	-	1 (0.5%)
Coolie	1	38	1	9	11	14	-	6	5	85 (43.8%)
Farmer	-	3	-	-	1	1	-	-	-	5 (2.6%)
Housewife	-	14	-	1		2	-	-	-	17 (8.8%)
Labour	-	2	-	-	1	1	-	-	1	5 (2.6%)
Mechanic	-	2	-	-	1	-	-	-	-	3 (1.5%)
No work	-	10	-	-	3	2	-	-	-	15 (7.7%)
Nursing staff	-	1	-	-		1	-	-	-	2 (1.03%)

Painter	-	1	-	-	1	-	-	-	-	2 (1.03%)
Pharmacist	-	1	-	-	-	-	-	-	-	1 (O.5%)
Private job	-	1	-	-	1	-	-	1	1	4 (2.1%)
Retired employ	-	1	1	-	-	-	-	1	-	3 (I.5%)
Student	-	13	-	1	-	-	3	-	-	17 (8.8%)
Tailor	-	1	-	-	-	-	-	-	-	1 (0.5%)
	2	102	3	13	23	30	3	8	10	194

Maximum number of patients 85 (43.8%) were found to be coolies. The next common was agriculture labour 19 (9.8%), house wives were 17(8.8%) and students 17(8.8%)

Table – 6 : Duration

Duration	TT	BT	BB	BL	LL	PN	IL	Type1	Ttpe 2	Total
< 6 Months	-	43	3	6	13	17	3	2	9	96 (49.5%)
6-11Months	1	21	-	4	5	7	-	1	1	40 (20.6%)
1-5 Years	1	31	-	3	5	6	-	5	-	51 (26.3%)
6-10 Years	-	6	-	-	-	-	-	-	-	06 (3.1%)
>10 Years	-	1	-	-	-	-	-	-	-	01 (0.51%)

Maximum number of patients 96(49.5%)in this study had the duration of less than 6 months , it was between 1-5 yrs in 51(26.3%) and 6-11 months in 40(20.6%)

Table-7: Lepra Reactions

REACTION	TT	BT	BB	BL	LL	PN	IL	HISTOID	TOTAL
Type 1	-	7	1	-	-	-	-	-	8 (4.12%)
Type 2	-	-	-	-	8	-	-	2	10 (5.15%)

In a total of 194 patients, 8 patients (4.12%) had type I reaction which was seen in 7 BT patients i.e.(87%) and 1 BB patient (12%).10 patients (5.15%) had type 2 lepra reaction i.e. in 8 patients of LL (80%) and 2 patients of Histoid leprosy (20%).

Table-8: Deformities

Deformities	TT	BT	BB	BL	LL	PN	IL	Type1	Type2	Total
No deformities	2	83	2	10	7	18	3	5	6	136 (70.1%)
AOT	-	-	-	-	4	-	-	-	-	04 (2.1%)
Claw hand	-	5	-	1	-	4	-	-	-	10 (5.2%)
Fissures	-	4	-	2	3	-	-	1	-	10 (3.1%)
Foot drop	-	2	-	-	2	1	-	-	-	05 (2.6%)
PCH	-	2	-	-	-	1	-	-	-	03 (1.5%)
Ulcer	-	7	-	1	9	3	-	2	3	25 (12.9%)
Wrist drop	-	-	1	-	-	-	-	-	-	01 (0.5%)

PCH-partial claw hand; AOT- absorption of toes.

Amongst patients of BT trophic ulcers were found in 7(6.8%) , claw hand in 5(4.9%) and foot drop and partial claw hand in 2 (1.94%) patients each . Amongst patients of PN 4 (14.8%) had claw hand and 3 (11.1%) trophic ulcers . Amongst LL patients 9 (36%) had trophic ulcers,4 (16%) had absorption of toes and fissures in 3(12%) and 2(8%) had foot drop.

TABLE-9: On Treatment Cases

Type	TT	BT	BB	BL	LL	PN	IL	Type1	Type2	Total
No.of cases	1	21	0	2	4	4	0	2	3	37(19.1%)

Out of 194 patients,37 (19.1%) were on treatment during the study. The minimum duration is 1 month and maximum duration was 8 months. All the patients were on MDT- MB treatment.

Leprosy is a spectral disease in which the clinical and pathological features reflect the cell mediated immunity of the host. The WHO classification of dividing leprosy into PB (<5 lesions) and MB (>5 lesions) is recommended for routine use and either Indian or Ridley –Jopling classification for research workers. Pure

neuritic leprosy has been recognised as a separate group in Indian classification.

II. Discussion

1.Age distribution: In the present study , the youngest was 3 yrs old and the oldest was 85 yrs. 3 children were below 10 yrs which suggests high infectivity status in the community. Positive family / contact history in childhood leprosy was seen in almost half of the cases. All 3 patients with indeterminate leprosy had positive family history. It indicates that contacts in the family play a significant role in development of the disease.

In the present study majority patients 81 (41.75%) belonged to the age group of 20-39 yrs i.e. reproductive active age group in both sexes.

Santaram and Porichha[4] found the disease to be more common in the age group of 21-40 yrs. Similarly Samuel et al[5], found the disease to be more common in the age group of 21-40 yrs(48%). Singh et al,[6] found the disease in 53 % of patients belonging to age group of 21-40 yrs.

Thus the age incidence observed in the present study correlates well with that of the other studies. The disease is more common in this age group indicates vulnerability because of greater mobility and increased opportunity for contact in big population.

2. Sex distribution: In the present study 70.1% of patients were males and 29.9% were female patients.

Santaram and Porichha[4] found the disease in 80% of males and 20% of females. Singh et al[6] found the disease in 69% of males. The results of the present study are close to the above mentioned studies with regard to the sex. This can be explained as a fact that males go for outdoor work more compared to females hence have the higher chance of getting the infection .As a result of their life style males in general expose themselves to greater risk of infection. Differing clothing habits especially in cases of women who cover their bodies more than men have reduced opportunities for skin contact. Male preponderance may also be due to difference in health seeking behaviour of men and females are slow to self report.

3. Clinical diagnosis: out of 194 cases ,2 (1.03%) were diagnosed as TT,102 (52.57%) as BT,3 (1.54%) as BB,13 (6.70%) as BL ,23 (11.85%) as LL,30 (15.46%) as PN , 3 (1.54%) as IL, 8 (4.12%) as Type 1 lepra reaction and 10 (5.15%) as type -2 lepra reaction.

Jindal et al,[8] found LL in 33% of patients BL in 23 % of patients ,TT in 5.5% of patients BB 4% ,IL and pure neural 3% each of patients.

Arora et al[9] found BB and BL in 45% of patients ,BT 27.5% ,LL in 15.5%, pure neural in 9 % and 1.3% each in IL and TT patients.

Thus the clinical types of leprosy observed varies from study to study and place to place.

Borderline leprosy lesions are more apparent and this may be a reason for more patients self reporting with borderline forms of leprosy. Increase in the proportion of multi bacillary cases is important as they represent major source of infection.

In the present study,15.46% of the patients presented with neuritic leprosy.

Follow-up of the pure neuritic leprosy shows the development of skin lesions over 3-5 yrs .This suggests that neuritic symptoms probably are the earliest symptoms of leprosy before the development of skin lesions and that is why, patients of pure neuritic leprosy must be followed up for long time.

Socio-economic status : In the present study 80% of the patients were from low income group and 20% of patients belonged to middle income group.

Similar observations were made by Chhabriya et al[10] wherein the majority of patients belonged to low income group.

Sing et al,[6] found the disease in 57% of patients belonging to poor socio-economic status followed by 21.6 % in lower – middle socio-economic status people.

Highest incidence among the socio-economically down trodden persons who lived in poor conditions resulting in overcrowding, poor sanitation and poor nutrition, illiteracy and lack of personal hygiene are important factors in acquisition of the disease in case of leprosy. Domestic overcrowding provides ideal conditions for infection whether by droplets or by skin to skin contact and under nourishment reduces cell mediated immunity.

Another possible reason for higher incidence among illiterates is the lack of knowledge regarding the regular treatment and also the habit of attending the leprosy clinic in the late stage of the disease as many of these people attribute this to diseases like Pityriasis(Tinea) versicolor. If people come early for treatment the incidence of complications will be low.

Occupation: In the present study the disease was most common among the coolies(43.81%). Ankad et al,[11] found higher incidence among manual labourers and agriculture workers. In a study by Choudhuri et al,[12] 90% of patients were agriculture related workers.

This is again as observed earlier due to the factors like low economic status which is associated with

illiteracy, overcrowding, poor personal hygiene and malnutrition which are common among people persuing the manual labour work. Another possible cause is lack of adherence to therapy because they are ignorant about the consequences of the disease.

Duration: In the present study duration of the illness by the time of presentation was less than 6 months in 49.5 %, 6-11 months in 20.6% of patients and 1-5 yrs in 26.3% patients.
Wim et al[13] found the duration of disease to be upto 6 months in 30%,7-12 months in 32%,13-24 months in 17%, 25- 36 months in 9.3 %,37-60 months in 6.3% and more than 60 months in 5.4%. Majority of people are coming relatively earlier i.e. within 2yrs of onset of disease but this log period must be further reduced to prevent disease complications. Leprosy is still considered as a contagious and unclean disease, therefore patients particularly females tend to hide their disease and delay their treatment at the time when they could have been easily cured. The duration of disease was less than 6 months in majority of patients with BT leprosy, this is because of early onset of symptoms in these patients. They present to hospital earlier than those in other spectrum of disease.

Lepra reactions : In the present study 8 patients out of 194 had (4.2%) type 1 lepra reaction, out which 7 were BT patients(87%) and 1 was BB patient and 10 patients(5.2%) had type 2 lepra reaction, out of which 8 were LL patients and 2 patients were Histoid.

Arora et al[59] found the reaction in 34 % of their patients and type 1 reaction was significantly more compared to type 2 lepra reaction. In the present study type 2 lepra reaction was more commonly seen when compared to type 1 lepra reaction.

The occurrence of type 1 reaction during the first year of treatment and that of 2 after 2 years is an established fact. With regard to the recurrences single episode was more common in type 1 reaction and multiple episodes in type 2 reaction.

It is very essential to recognise the reactional leprosy irrespective of the type of reaction. This is because the patients with type 1 reaction are more prone for deformities which are responsible for the stigmata attached to leprosy, where as the patients with type 2 reaction are more for systemic complications like nerve pain, bone pain, pain in joints, iritis, episcleritis, painful dactylitis. epididymo orchitis, acute glomerulo nephritis etc. Which make the persons unproductive adding to socio-economic liability.

Education of the patients regarding the disease especially regarding the reactions goes a long way in containing the social problems .As the reactions are more common after initiating therapy, patients should be well counselled about the possibility of occurrence of reactions and they should not defer from treatment.

Deformities: In the present study 58 (29.9%) patients showed deformities in the form of claw hand, foot drop, trophic ulcers and resorption of digits, which suggests delay in diagnosis, treatment and lack of disease awareness in the patients.
Nagabhushanam[7] found claw hand deformity in 17.3% of patients and more of the patients revealed wrist drop, out of 410 patients.Though MDT has made a sea change in profile of the disease,disabilities continue to be a major problem.Leprosy has been a feared and stigmatised disease mainly because of the deformities associated with it.

Cases on treatment during study: In the present study out of 194 patients, 37 (19.1%) patients were on treatment during study. Maximum number patients 21 (10.8%) were seen in BT group followed by 4 (2.6%) in LL and PN each and 3(1.54%) in type 2 reaction.

There was an increase in the new cases registered in 2012 as compared to 2011 in India (5.9%).This could be because of hidden prevalent cases, improved case detection activities and improved programme coverage.

However new leprosy cases may suggests active infection in the community and warrants resurgence of leprosy. This is probably due to fixed duration of therapy for one year to multibacillary leprosy which may be insufficient and discontinuation of surveillance activities. As leprosy has got long incubation period and persistent course , resurgence of leprosy may become a serious health problem again.

The contribution of dermatologists in the success of leprosy elimination is well recognised. Dermatologists play an indispensable role in the current setting by :1.Acting as a ‘’safety-net’’ for patients ‘’missed’’ by other health services by 2. Managing the complications and by 3 training health service staff about case detection and treatment for more efficient management at peripheral level.

In addition, issues relating to stigma ,discrimination and rehabilitation need to be tackled in a more integrated and inclusive manner to realize the dream of leprosy - free India. Good housing and living conditions and good nourishment decrease the spread of leprosy.

III. Limitations and conclusion

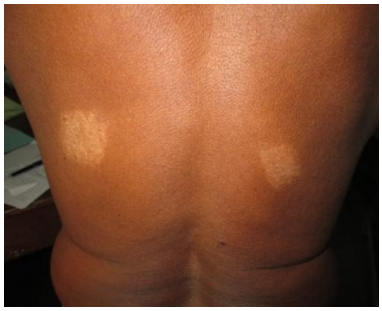
Patients included in the present study were only those who attended the out patient and inpatient departments of DVL of Government General Hospital, Guntur. Hence this study gives limited information about the epidemiology of the disease.

The duration of study was only one and half year. So further studies are required to know the disease status better which helps in planning for preventive measures, early diagnosis and management.

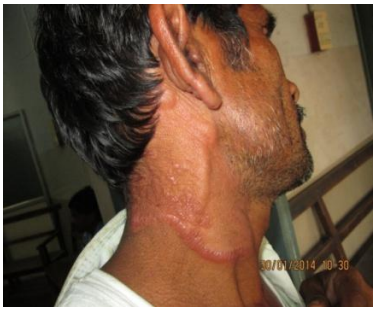
Even now ,around a quarter of a million new cases are recorded each year all over the world, ranking leprosy as the 11th highest cause of mortality and 12th highest cause of morbidity from neglected cases (15). Perhaps we are failing to understand some important aspects of the disease's natural history.Prospect of elimination has discouraged the research in the field There is disappointingly very littlle progress in the development of an effective vaccine for leprosy.[3]

Till such understanding is achieved, some high endemic pockets of leprosy may continue to persist in India. In such a scenario the main principles of leprosy control are 1. increasing the duration of treatment in multibacillary cases especially smear positive, BL and LL cases thereby decreasing the spread 2. timely detection of new cases and prompt treatment to prevent deformities in the affected and the spread of disease in community through increasing the surveillance activities.3. Keeping families of patients under surveillance 4.Improving socio-economic conditions 5.Health education and publicity about leprosy, with emphasis on early presentation for diagnosis and the likelihood of cure by multiple drug therapy. Self presentation for diagnosis should be greatly encouraged .6.Increasing community awareness utilising Information, Education, and Communication (IEC) activities at all levels and in all states with more emphasis on endemic states should be launched. 7.The message should be in local language to be more effect.

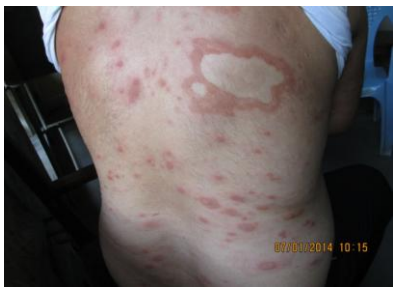
PHOTOGRAPHs



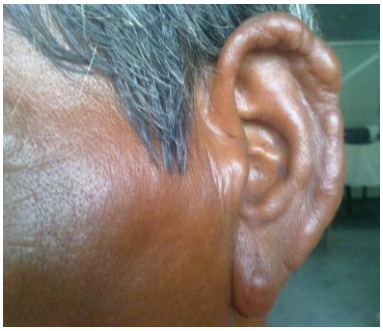
Borderline Tuberculoid Leprosy



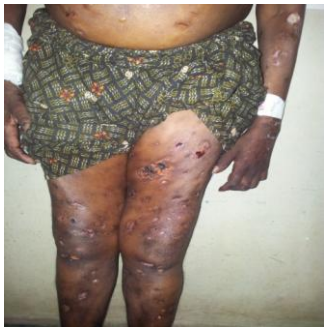
great auricular nerve enlargement



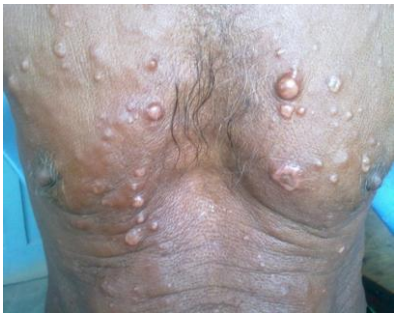
Mid Borderline Leprosy (inverted saucer shape appearance)



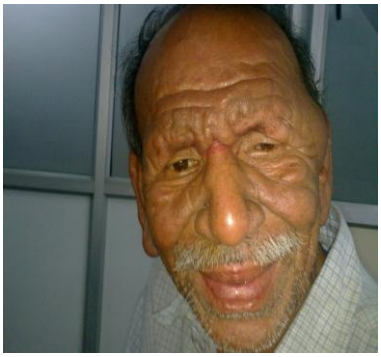
Lepromatous leprosy with Ear lobe infiltration



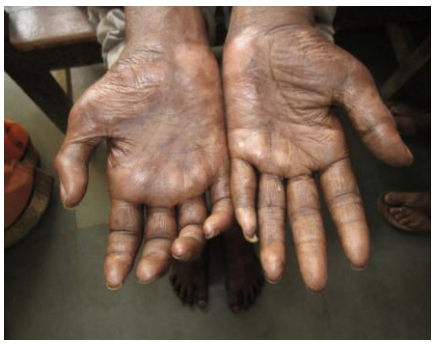
Lepromatous Leprosy with Erythema necroticans



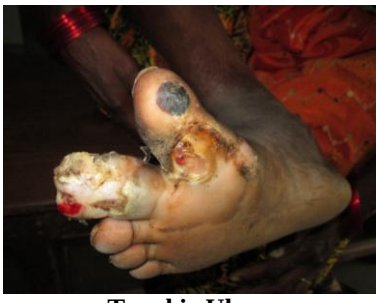
Histoid Leprosy



LL with Leonine facies-appearance



Claw Hand



Trophic Ulcer

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