

Management of leprosy on the basis of the epidemiology of disabilities

R. GANAPATI, C. R. REVANKAR & S. KINGSLEY
*Bombay Leprosy Project, Vidnyan Bhavan, 11 VN Purav Marg
Sion-Chunabhatti, Bombay 400 022/India*

Accepted for publication 7 November 1995

Summary With the reduction on caseload due to the impact of multidrug therapy (MDT) in most parts of India, we believe that there is a need to understand the epidemiology of disabilities in leprosy which may not necessarily correlate with the distribution pattern of active disease. We present a methodology of data collection and verification taking the district as a unit to calculate the prevalence rate of disability as an exclusive entity in the district population, unrelated to the problems posed by the communicable component of leprosy. This study indicated that the prevalence rate of Grade II disabilities in 14 hyperendemic districts was 0.82/1000, whereas it was 0.22/1000 in low endemic districts. Limb disability data collected from three hyperendemic districts in Andhra Pradesh following task-oriented training enabled the paramedical worker to offer services to 5753 disabled patients after assessing the disability caseload per worker.

Introduction

The distribution pattern of disabilities in leprosy may not necessarily correlate with the disease distribution as a whole. For instituting an ideal field-based management programme exclusively for disabilities, a special strategy is called for. Multidrug therapy (MDT) has created a definite impact in reducing the 'caseload' represented by a declining active disease prevalence, as well as a declining 'disability rate' among new cases. However, the pool of disabilities among old monotherapy-cured cases, new cases detected with disabilities and relatively lesser numbers of cases developing disabilities during MDT and the surveillance period is left over as a post-MDT residual problem. We believe that unless we study the epidemiology of disability as an exclusive entity, unrelated to the problems posed by the communicable component of leprosy, we cannot do full justice to the management of leprosy as a whole. In this study we have taken the district as the unit for assessment of the prevalence rate of disabilities before launching a field-based disability care programme.

Material and methods

In order to understand the epidemiology of disabilities at the district level, we made an attempt to collect data from:

hyperendemic MDT districts of the National Leprosy Eradication Programme (NLEP) in India supported by the Swedish International Development Authority (SIDA) using questionnaires during the recent evaluation (Table 1);

low endemic MDT districts in Gujarat through routinely available data in collaboration with the CIBA supported 'Comprehensive Leprosy Care Project' (Table 2); and

hyperendemic MDT district in Andhra Pradesh supported by the Norwegian International Development Authority (NORAD) through a specially designed survey proforma (see Appendix 1) in collaboration with the State Directorate of Health Services (Leprosy) (Table 3).

Results

These data have been collected from the available records since the establishment of leprosy control units till the end of December 1993. Therefore the period may not be even and comparable.

Tables 1 and 2 indicate the magnitude of the problem in relation to the population in hyperendemic districts and relatively less in low endemic districts. The data, however, do not suggest at field level the services that should be provided according to the needs of the patients. We, therefore, developed a new method of collecting data using a simple proforma (see Appendix) in two endemic districts in Andhra Pradesh during the operation of a special project on 'Early Rehabilitation and Disability Care Programme' supported by NORAD.

Table 1. Prevalence of leprosy disability in hyperendemic districts

Sr No	District	Population (1991 census)	Registered cases* (old + new)	Disabled cases† (old + new)	Disability %	Disability PR/1000
1	Krishna	3693179	54367	2616	4.81	0.71
2	Srikakulam	2321126	59703	1182	1.97	0.50
3	Vishakapat nam	3272110	40032	1055	2.63	0.32
4	Deogarh	918233	19380	3021	15.58	3.29
5	Baroda	3094692	28125	2287	8.13	0.72
6	Belgaum	3593606	26061	1720	6.59	0.48
7	Dharwar	3503150	32236	1752	5.43	0.50
8	Amaravati	2008568	41627	78	0.18	0.04
9	Wardha	1065589	41490	1173	2.82	1.19
10	Chandrapur	1768958	48981	320	0.65	0.18
11	Tanjavur	4526701	63741	5702	8.94	1.26
12	Chengal pattu	4620967	15538	6015	5.20	1.30
13	Purulia	2217423	83997	3771	4.48	1.70
14	Varanasi	4798729	47045	3041	6.46	0.63
		41493031	702323	33833	4.81	0.82

* Includes old monotherapy cases also.

† Only Grade II as per WHO disability grading (1988).

Table 2. Prevalence of leprosy disability in low endemic districts

Sl No	District	Population (1991 census)	Registered cases (old + new)	Disabled cases* (old + new)	Disability %	Disability PR/1000
1	Banaskatha	1667914	2501	186	7.43	0.11
2	Sabarkatha	1502284	3059	781†	25.53	0.51
3	Mehsana	2548787	1614	359	22.24	0.14
4	Gandhinagar	289088	205	34	16.58	0.11
		6008073	7379	1360	18.43	0.22

* Grade I and Grade II as per WHO disability grading (1988).

† Includes 300 disabled patients living in a leprosy home and not necessarily from the same district.

Table 3 shows the number of leprosy patients with different kinds of disabilities in relation to limbs.

The extent of the problems posed by each type of disability in relation to the population as revealed by such an analysis will be useful to plan the service delivery, because employment of paramedical workers is always based on the population in any given area.

Table 4 shows the types of services provided by paramedical staff according to needs of disabled leprosy patients after collecting data as shown in Table 3.

All the disabled patients of Prakasam and Kurnool districts were offered services through the existing leprosy staff following a task-oriented training on field deformity care. After a period of 3 years, the impact of the disability care programme could be assessed. This will form the subject of a future communication.

Table 3. Distribution of limb disabilities

Sl No	Limb disability	District					
		Prakasam (2750340)* Cases: PR/1000		Kurnool (3183624)* Cases: PR/1000		Cuddapah† (2259154)* Cases: PR/1000	
1	Total disabled cases	1725	0.63	2310	0.72	1718	0.76
2	Grade I	415	0.15	864	0.27	NA	—
	Grade II	1310	0.48	1456	0.46	NA	—
3	Upper limb						
	Anaesthesia	1070	0.39	1539	0.50	NA	—
	Claw hand	923	0.34	1358	0.43	844	0.37
	Wrist drop	30	0.01	40	0.01	23	0.07
4	Lower limb						
	Finger absorption	581	0.21	344	0.11	162	0.07
	Anaesthesia	1315	0.47	1131	0.36	652	0.29
	Plantar	874	0.31	627	0.19	216	0.10
5	Ulcer						
	Foot drop	170	0.06	273	0.20	208	0.09
	Claw toes	541	0.20	669	0.21	192	0.08
	Face/eye						
5	Anaesthesia	44	0.02	74	0.02	NA	—
	Lagophthal	87	0.03	136	0.04	67	0.03
	Depressed nose	139	0.05	162	0.05	148	0.07

* Population as per 1991 census.

† Data provided by Dr N. Sivarama Brahmachary, District Leprosy Officer, Cuddapah, Andhra Pradesh. NA, not available.

Table 4. Services provided to disabled leprosy cases

Sl No	Service	District	
		Prakasam	Kurnool
1	Splints	867	954
2	Grip-aids	252	244
3	Mini POP	106	68
4	Dressing	432	160
5	MCR footwear	1315	514
6	Foot drop spring	27	Nil
7	Eye care	85	74
8	Care of limbs	1360	1062
9	Demonstrated exercises	614	728

Discussion

The prevalence rate of disabilities is an indicator of the caseload with disabilities. A knowledge of the trends on the distribution and types of deformity is, therefore, of great value in order to establish the epidemiological and operational aspects of disability care and prevention programme which would be an integral part of leprosy control programmes. It has been observed that a uniform methodology of assessing the disabilities practised in 2 hyperendemic NORAD supported districts enabled the leprosy staff to understand the type of disability, which have resulted in providing more effective disability care in the community.

Conclusion

We believe that in order to scientifically implement a disability care programme using available field technologies, an epidemiological database at the district level is needed. To provide specific services, limb and type of disability data are required, i.e. number of claw hands, foot drops, plantar ulcers etc. It is also necessary to know the distribution of such cases at village level to workout the disability caseload per worker.

The provision of field services in low-endemic areas is likely to be more challenging considering the sparse distribution of deformity cases in the general population.

Acknowledgments

We are thankful to SIDA, New Delhi and the Deputy Director General of Health Services (Leprosy), New Delhi for permitting the collection of data from the SIDA supported MDT district during evaluation.

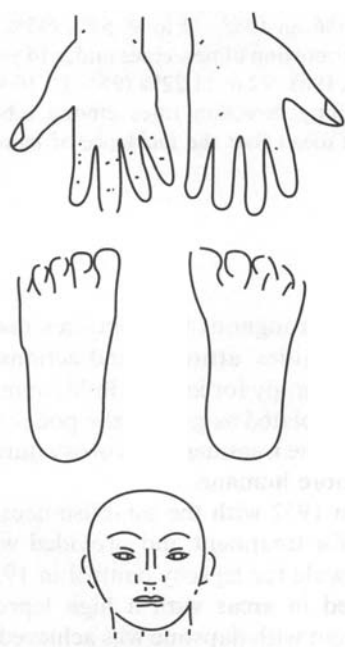
















































We are also thankful to the Director of Health Services, NLEP/WHO State Consultant and the District Leprosy Officers of NORAD-supported MDT districts of Andhra Pradesh for permitting us to implement the Deformity Care and Management Programme in Prakasam and Kurnool Districts. Thanks are also due to NORAD for their generous financial support to implement the abovementioned project.

The secretarial assistance provided by Mr K. Sreedharan in preparing this article is acknowledged.

References

¹ WHO Expert Committee on Leprosy, *Sixth Report WHO Technical Report Series, No. 786*, WHO Geneva 1988.

Appendix

Disability Care & Survey Proforma																																																																																			
Name	Age / Sex :																																																																																		
Registration No.	Type :																																																																																		
Address	Date :																																																																																		
Disability Assessment																																																																																			
<div style="display: flex; justify-content: space-around; margin-bottom: 10px;"> RIGHT LEFT </div> 	<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; padding: 5px;"><u>DISABILITY</u></th> <th style="text-align: center; padding: 5px;"><u>KEY</u></th> <th style="text-align: left; padding: 5px;"><u>SERVICES</u></th> </tr> </thead> <tbody> <tr> <td style="padding: 5px;">ANAESTHESIA</td> <td style="text-align: center; padding: 5px;"></td> <td style="padding: 5px;">CARE OF HANDS</td> </tr> <tr> <td style="padding: 5px;">ABDUCTION</td> <td style="text-align: center; padding: 5px;"></td> <td style="padding: 5px;">ABDUCTOR BAND</td> </tr> <tr> <td style="padding: 5px;">MOBILE CLAW FINGER</td> <td style="text-align: center; padding: 5px;"></td> <td style="padding: 5px;">FINGER LOOPS</td> </tr> <tr> <td style="padding: 5px;">FIXED CLAW FINGER</td> <td style="text-align: center; padding: 5px;"></td> <td style="padding: 5px;">FINGER GUTTER</td> </tr> <tr> <td style="padding: 5px;">THUMB DEFORMITY</td> <td style="text-align: center; padding: 5px;"></td> <td style="padding: 5px;">OPPONENNS LOOP</td> </tr> <tr> <td style="padding: 5px;">INJURY OR ULCER</td> <td style="text-align: center; padding: 5px;"></td> <td style="padding: 5px;">DRESSING</td> </tr> <tr> <td style="padding: 5px;">ABSORBTION</td> <td style="text-align: center; padding: 5px;"></td> <td style="padding: 5px;">GRIP - AIDS</td> </tr> <tr> <td colspan="3" style="padding: 10px 0 10px 10px;"> </td> </tr> <tr> <td style="padding: 5px;">ANAESTHESIA</td> <td style="text-align: center; padding: 5px;"></td> <td style="padding: 5px;">CARE OF FEET</td> </tr> <tr> <td style="padding: 5px;">FOOT DROP</td> <td style="text-align: center; padding: 5px;"></td> <td style="padding: 5px;">MCR WITH SPRING</td> </tr> <tr> <td style="padding: 5px;">CLAW TOES</td> <td style="text-align: center; padding: 5px;"></td> <td style="padding: 5px;">MCR WITH MTB</td> </tr> <tr> <td style="padding: 5px;">ULCER</td> <td style="text-align: center; padding: 5px;"></td> <td style="padding: 5px;">CTD / POP</td> </tr> <tr> <td style="padding: 5px;">ABSORBTION</td> <td style="text-align: center; padding: 5px;"></td> <td style="padding: 5px;">MOULDED FOOTWEAR</td> </tr> <tr> <td colspan="3" style="padding: 10px 0 10px 10px;"> </td> </tr> <tr> <td style="padding: 5px;">CORNEAL ANAESTHESIA</td> <td style="text-align: center; padding: 5px;"></td> <td style="padding: 5px;">CARE OF EYES</td> </tr> <tr> <td style="padding: 5px;">RED EYE</td> <td style="text-align: center; padding: 5px;"></td> <td style="padding: 5px;">EYE OINT / DROPS</td> </tr> <tr> <td style="padding: 5px;">LAGOPHTHALMOS</td> <td style="text-align: center; padding: 5px;"></td> <td style="padding: 5px;">EYE PAD / GOGGLES</td> </tr> <tr> <td style="padding: 5px;">FACIAL PARALYSIS</td> <td style="text-align: center; padding: 5px;"></td> <td style="padding: 5px;">HOT FORMT. / SLING</td> </tr> </tbody> </table>	<u>DISABILITY</u>	<u>KEY</u>	<u>SERVICES</u>	ANAESTHESIA		CARE OF HANDS	ABDUCTION		ABDUCTOR BAND	MOBILE CLAW FINGER		FINGER LOOPS	FIXED CLAW FINGER		FINGER GUTTER	THUMB DEFORMITY		OPPONENNS LOOP	INJURY OR ULCER		DRESSING	ABSORBTION		GRIP - AIDS				ANAESTHESIA		CARE OF FEET	FOOT DROP		MCR WITH SPRING	CLAW TOES		MCR WITH MTB	ULCER		CTD / POP	ABSORBTION		MOULDED FOOTWEAR				CORNEAL ANAESTHESIA		CARE OF EYES	RED EYE		EYE OINT / DROPS	LAGOPHTHALMOS		EYE PAD / GOGGLES	FACIAL PARALYSIS		HOT FORMT. / SLING	<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; padding: 5px;">(USE TICK MARK ✓)</th> <th style="text-align: center; padding: 5px;">RIGHT</th> <th style="text-align: center; padding: 5px;">LEFT</th> <th style="text-align: left; padding: 5px;"></th> <th style="text-align: center; padding: 5px;">RIGHT</th> <th style="text-align: center; padding: 5px;">LEFT</th> </tr> </thead> <tbody> <tr> <td style="padding: 5px;">WRIST DROP</td> <td style="text-align: center; padding: 5px;"><input type="checkbox"/></td> <td style="text-align: center; padding: 5px;"><input type="checkbox"/></td> <td style="padding: 5px;">LOSS OF EYEBROW</td> <td style="text-align: center; padding: 5px;"><input type="checkbox"/></td> <td style="text-align: center; padding: 5px;"><input type="checkbox"/></td> </tr> <tr> <td style="padding: 5px;">BLURRING VISION</td> <td style="text-align: center; padding: 5px;"><input type="checkbox"/></td> <td style="text-align: center; padding: 5px;"><input type="checkbox"/></td> <td style="padding: 5px;">BLINDNESS</td> <td style="text-align: center; padding: 5px;"><input type="checkbox"/></td> <td style="text-align: center; padding: 5px;"><input type="checkbox"/></td> </tr> <tr> <td style="padding: 5px;">DEPRESSED NOSE</td> <td style="text-align: center; padding: 5px;"><input type="checkbox"/></td> <td style="text-align: center; padding: 5px;"><input type="checkbox"/></td> <td style="padding: 5px;">GYNEOCOMASTIA</td> <td style="text-align: center; padding: 5px;"><input type="checkbox"/></td> <td style="text-align: center; padding: 5px;"><input type="checkbox"/></td> </tr> </tbody> </table>	(USE TICK MARK ✓)	RIGHT	LEFT		RIGHT	LEFT	WRIST DROP	<input type="checkbox"/>	<input type="checkbox"/>	LOSS OF EYEBROW	<input type="checkbox"/>	<input type="checkbox"/>	BLURRING VISION	<input type="checkbox"/>	<input type="checkbox"/>	BLINDNESS	<input type="checkbox"/>	<input type="checkbox"/>	DEPRESSED NOSE	<input type="checkbox"/>	<input type="checkbox"/>	GYNEOCOMASTIA	<input type="checkbox"/>	<input type="checkbox"/>
<u>DISABILITY</u>	<u>KEY</u>	<u>SERVICES</u>																																																																																	
ANAESTHESIA		CARE OF HANDS																																																																																	
ABDUCTION		ABDUCTOR BAND																																																																																	
MOBILE CLAW FINGER		FINGER LOOPS																																																																																	
FIXED CLAW FINGER		FINGER GUTTER																																																																																	
THUMB DEFORMITY		OPPONENNS LOOP																																																																																	
INJURY OR ULCER		DRESSING																																																																																	
ABSORBTION		GRIP - AIDS																																																																																	
ANAESTHESIA		CARE OF FEET																																																																																	
FOOT DROP		MCR WITH SPRING																																																																																	
CLAW TOES		MCR WITH MTB																																																																																	
ULCER		CTD / POP																																																																																	
ABSORBTION		MOULDED FOOTWEAR																																																																																	
CORNEAL ANAESTHESIA		CARE OF EYES																																																																																	
RED EYE		EYE OINT / DROPS																																																																																	
LAGOPHTHALMOS		EYE PAD / GOGGLES																																																																																	
FACIAL PARALYSIS		HOT FORMT. / SLING																																																																																	
(USE TICK MARK ✓)	RIGHT	LEFT		RIGHT	LEFT																																																																														
WRIST DROP	<input type="checkbox"/>	<input type="checkbox"/>	LOSS OF EYEBROW	<input type="checkbox"/>	<input type="checkbox"/>																																																																														
BLURRING VISION	<input type="checkbox"/>	<input type="checkbox"/>	BLINDNESS	<input type="checkbox"/>	<input type="checkbox"/>																																																																														
DEPRESSED NOSE	<input type="checkbox"/>	<input type="checkbox"/>	GYNEOCOMASTIA	<input type="checkbox"/>	<input type="checkbox"/>																																																																														
Proforma Designed by: BOMBAY LEPROSY PROJECT, BOMBAY																																																																																			