

Pattern and Causes of Rural Based Locomotor Disabled

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Abstract

780 rural based locomotor disabled are studied to find out the pattern and causes of disability. Males are four times more than females. Paralysis of limb is maximum 55.1% followed by stiffness of joint 27.7%, loss of limb 11.7%, Kyphoscoliosis 2.8% and others 2.7%. Paralysis affects mainly one lower limb (53.3%) followed by one upper limb (15.6%), both lower limbs 14.4%, all four limbs 8.4%, one upper and one lower limb 8.1%. Paralysis of limb is mainly due to residual poliomyelitis (81%) followed by spastic cases 17%. Stiffness of joint affects mainly foot and ankle (28%) followed by wrist and hand (14%), Hip (13%), knee (11%), elbow (9%) and others. Main causes of stiffness of joints are congenital deformity (51.9%) and post traumatic stiffness (35.6%). Loss of limb is mainly due to post traumatic amputation (84.6%) and congenital limb deficiency 14.3%. Upper limb loss is more (55%) than lower limb loss (45%). In this study on locomotor disability poliomyelitis is (45%), congenital deformity (14.3%), post traumatic stiffness (10%), amputee (11.7%), spastics 9% and others 10%.

Introduction

Rehabilitation is still an under-developed services in rural areas. Even in rural Medical College there is no comprehensive rehabilitation services for disabled. In rural medical college there is no facility of orthosis and prosthesis services and Physical Medicine Departments have been dumping ground for chronically ill patients. This is probably due to financial constraints and feeling that rehabilitation services are expensive due to dependence on sophisticated machines and equipment. On the other hand, in the rural areas population explosion with large number of congenital malformed children, inability to eradicate preventable diseases like polio, leprosy etc, rapid industrialisation, mechanisation in agriculture and fast-moving traffic with increased number of accidents are increasing the number of disabled persons day by day. It is aimed to study the pattern and causes of locomotor disabled in

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rural areas which may be helpful to take definite measures for their prevention and to develop less costly, simple, community oriented rehabilitation measures.

Material and Method

The study is carried out in the Department of Physical Medicine and Rehabilitation, Burdwan Medical College and Hospital, Burdwan, a rural Medical College in West Bengal, during the period from January 1993 to December 1993. All locomotor disabled irrespective of age, sex and cause, attending the department and medical board seeking physically handicapped certificates during this period, are included in the study. In each case history, clinical examination, blood test and X-ray if required are done to come to a diagnosis.

Observations :

A total of 780 locomotor disabled attended the department during the period of one year, of which 611 (78%) are male and 169 (22%) female. Maximum cases 330 (42.5%) are in the age-group

Table - 1. Showing pattern of locomotor disables in relation to age & sex

Pattern of Disables	Age in Years					Sex		Total %
	0-10	10-20	20-40	40-60	60 +	Male	Female	
Paralysis of limb	59 13.7%	173 40.2%	159 37%	39 9.1%	0	328 76.3%	102 23.7%	430 55.1%
Stiffness of joint	11 5%	70 32%	101 47%	32 15%	2 1%	175 81%	41 19%	216 27.7%
Loss of Limb	5 5.5%	16 17.5%	48 52.7%	18 20%	4 4.3%	84 92.3%	7 7.7%	91 11.7%
Kyphoscoliosis	0	6 27%	14 64%	2 9%	0	12 54.5%	10 45.5%	22 2.8%
Cured Leprosy	0	2 22.2%	4 44.4%	3 33.4%	0	5 55.5%	4 44.5%	9 1.2%
Shortening of Limb	0	5 71.4%	1 14.3%	1 14.3%	0	4 57.2%	3 42.8%	7 0.9%
Dwarfism	1 25%	0	3 75%	0	0	2 50%	2 50%	4 0.5%
Achondroplasia	0	1 100%	0	0	0	1 100%	0	1 0.1%
Total %	76 (10%)	273 (35%)	330 (42.5%)	95 (12%)	6 (0.5%)	611 (78%)	169 (22%)	780 (100%)

of 20-40 years followed by 273 (35%) in the age-group of 10-20 years (Table-1).

Out of 780 disabled, paralysis of limb cases are maximum 430 (55.1%), followed by stiffness of joint cases 216 (27.7%), loss of limb 91 (11.7%), kyphoscoliosis 22 (2.8%) and others like cured leprosy, shortening of limb, dwarfism and achondroplasia 21 (2.7%) (Table-1). Paralysis of limb is maximum 173 (40.2%) in the age-group of 10-20 years and mainly 328 (76.3%) in male. Stiffness of joints are maximum 175 (81%) in male and mainly 101 (47%) in age-group of 20-40 years. Loss of limb cases are maximum 48 (52.7%) in age-group of 20-40 years and mostly 84 (92.3%) in male. Out of 430 cases of paralysis of limb, one lower limb is paralysed in 229 (53.3%) cases, both lower limbs are paralysed in 62 (14.4%), one upper limb and one lower limb in 35 (8.1%), one upper limb is involved in 67 (15.6%) cases, both upper

limbs in 1 (0.2%) and all four limbs are paralysed in 36 (8.4%) cases (Table-2). Cause of paralysis is mostly 349 (81%) poliomyelitis followed by spastic cases in 72 (17%) which include hemiparesis (23) paraparesis (21) and cerebral palsy (28) and others 9 (2%) like G.B. syndrome, motor-neurone diseases and parkinsonism.

Out of 216 cases of stiffness of joint, foot and ankle are involved in maximum cases 61 (28%) of which 21 left, 25 right and 15 are bilateral. Hip is involved in 28 (13%) cases of which 16 left, 10 right and 2 bilateral. Knee involvement is in 24 (11%) cases of which 8 left, 15 right and 1 bilateral. Wrist and hand are involved in 30 (14%) cases of which 15 left, 10 right and 5 bilateral. Elbow involvement is in 19 (9%) cases of which 11 left, 5 right and 3 bilateral cases. Shoulder is involved in only 4 (2%) cases. The cause of stiffness of joint is mainly congenital deformity 112 (51.9%), then post traumatic 77 (35.6%), arthropathies 14 (6.5%) and others like

Table - 2 : Showing pattern of paralysis of limb cases in relation to involved limb and cause

Involved limb	CAUSE			Total %
	Poliomyelitis	Spastic	Miscellaneous	
One lower limb	229	x	x	229 53.3%
Both lower limbs	40	21	1	62 14.4%
One upper and one lower limb	12	23	x	35 8.1%
One upper limb	65	x	2	67 15.6%
Both upper limbs	x	x	1	1 0.2%
All four limbs	2	28	6	36 8.4%
Total	349 (81%)	72 (17%)	9 (2%)	430 (100%)

post burn contracture, volkmann's ischaemic contracture etc. 13 (6%) (Table-3). The distribution of loss of limb cases is shown in Table-4. Upper limb is involved in 50 (55%) cases of which right 20, left 25 and bilateral 5. Among upper limb loss

cases at or above elbow loss 15 (16.5%) and at or above wrist loss 14 (15.4%). Lower limb is involved in 41 (45%) cases of which right 15 and bilateral 3. Among lower limb loss cases at or above knee loss cases are 14 (15.4%) and below

Table - 3. Showing pattern of stiffness of joint cases in relation to anatomical site and cause

Site	Side			Congenital	Cause			Total
	Left	Right	Both		Post Traumatic	Arthropathies	Misc.	
Hip	16	10	2	7	15	6	x	28 (13%)
Knee	8	15	1	5	17	2	x	24 (11%)
Foot & ankle	21	25	15	50	9	x	2	61 (28%)
Lower limb	12	7	3	11	9	x	2	22 (10%)
Shoulder	1	2	1	2	1	1	x	4 (2%)
Wrist & hand	15	10	5	13	9	x	8	30 (14%)
Elbow	11	5	3	6	12	1	x	19 (9%)
Upper limbs	6	6	1	5	5	2	1	13 (6%)
All limbs	x	x	x	13	x	2	x	15 (7%)
Total				112 51.9%	77 35.6%	14 6.5%	13 6%	216 100%

Table - 4. Showing pattern of loss of limb cases in relation to anatomical level and cause

Anatomical	Side affected			Cause			Total
	Right	Left	Both	Congenital	Post-Traumatic	Others	
At or above Elbow	7	8	x	1	14	x	15 (16.5%)
Ar or above Wrist	4	8	2	3	11	x	14 (15.4%)
Thumb and 4 Fingers	2	2	2	1	5	x	6 (6.5%)
One Thumb	2	2	x	2	2	x	4 (4.4%)
Only 4 Fingers	4	4	1	3	6	x	9 (9.9%)
Thumb & little preserved	1	1	x	2	x	x	2 (2.2%)
At or above Knee	7	6	1	x	13	1	14 (15.4%)
Below Knee	8	7	2	1	16	x	17 (18.7%)
At Ankle	6	1	x	x	7	x	7 (7.7%)
Through mid-foot	2	1	x	x	3	x	3 (3.3%)
Total				13 14.3%	77 84.6%	1 1.1%	91 100%

knee loss cases 17 (18.7%). The cause of loss of limb is mostly 77 (84.6%) post traumatic amputation, then congenital deficiency 13 (14.3%) and only one is gas-gangrene amputee.

Discussion :

In the present study incidence of locomotor disability is four times higher in male than in female which is similar to findings of some workers^{1,2}. In this study the pattern of locomotor disability is mainly paralysis of limb 430 (55.1%), then stiffness of joint 216 (27.7%), loss of limb 91 (11.7%) and kyphoscoliosis 22 (2.8%). Among paralysis of limb cases poliomyelitis is 349 (81%) which is 45% of total locomotor disables while other workers,^{1,2,3} observed poliomyelitis 35.5%, 50%, and 69.2% of locomotor disabled in their studies. In this study in polio-disables lower limb involvement is four times more than upper limb against 26 times as in other studies^{1,4}. In this study spastic cases are 9% of total locomotor disabled against 11.2% in the study of R. Kumar et al². Among stiffness of joint congenital deformity is 51.9% which is 14.3% of locomotor disables and post traumatic stiffness is 35.6% which is 10% of total locomotor disability. These probably indicate the deficit of facility of reconstructive surgery in rural area.

Here loss of limb is 11.7% of total locomotor disables against findings of 6.7% and 49.3% by other observers^{2,1}. The maximum number of loss of limb cases are seen in the age-group of 20-40 years, upper limb loss 55% and lower limb loss 45%. These observations are similar to that of R. Kumar et al². Here more number of left upper limb loss than that of right and more number of right lower limb loss than left do not agree with the findings of R. Kumar et al² which reveals equal involvement of right and left sides in both upper and lower limbs amputees.

References :

1. Agarwal, A.K. & Goel, M.K. - Problems in the Rehabilitation of physically Disabled in Rural India. J. of Prosthetics & Orthotics International, 2, 27-29, 1978.
2. Kumar, R., Bajpayee, A.K. & Agarwal, A.K. - A clinical study of 588 rural based locomotor Disabled : Camp Study, Indian Journal of Physical Medicine and Rehabilitation, 2, 29-32, 1989.
3. Ramalingaswami, V.-Community Based Rehabilitation of the disabled : challenge & opportunity, J. of Rehabilitation in Asia, Vol. XXV, 72, 1984.
4. Punatar, B. & Patel, D.A. - Pattern of residual paralysis in poliomyelitis, Indian J. Orthopaedic, 11, 174, 1977.