REHABILITATION IN ARTHRITIC DISEASES

A TWO-YEAR FOLLOW-UP

BY

J. P. GOFTON*

Vancouver, British Columbia

The following paper reports a statistical survey covering 2 years' work by a volunteer health agency (the British Columbia Division of the Canadian Arthritis and Rheumatism Society) engaged in providing rehabilitation services to patients throughout this large province of Canada.

The headquarters of this society are in Vancouver, Canada, a city of approximately 362,000 people, which contains a medical school and modern hospital facilities. Here the society maintains an active treatment centre where fifteen in-patients may receive intensive physiotherapy and other rehabilitative measures. This centre employs full-time and part-time specialists in arthritis and rheumatism as well as chartered physiotherapists, occupational therapists, social service workers, and nurses. Supervision of the conduct of the treatment programme and of its development in the Province is carried out by the staff of the Vancouver Centre.

The greater part of the work of the organization extends throughout an area of approximately 600×800 miles. Within this area are some twenty treatment units, each staffed by a physiotherapist located in a small treatment centre. She has adequate basic equipment and a car to enable her to provide additional treatment in the home or in smaller nearby towns. Each unit is supported by a local organization which raises funds, provides facilities, and organizes voluntary services for the patients. Where possible, use is made of community social service facilities, provincial vocational training facilities, and community service groups in meeting the needs of individual patients.

The society does not deny its physiotherapy services to patients with conditions other than arthritis and rheumatism, such as poliomyelitis, cardiovascular or cerebro-vascular disease, or to patients in the convalescent phase of surgery or after accidents. In all instances, the physiotherapists treat patients only at the request of and under the direction of the patient's physician.

* Asst. Medical Director, Canadian Arthritis and Rheumatism Society, B.C. Division.

This treatment programme has now been operating for about 8 years and has gradually spread to include all major population areas in the province, and even scattered communities where rapid communication is impossible owing to the mountainous nature of the terrain. It was envisaged that, initially, only physiotherapy facilities would be extended to the outlying areas, but in addition to this a consultation service, visiting each area twice a year, has been provided where it would not otherwise be available. In this way general practitioners who are somewhat removed from active academic centres may obtain information about the physical therapy provided, as well as advice on patient management, use of new drugs, and the availability of intensive treatment facilities in Vancouver. It still remains to be seen, however, whether such aspects of rehabilitation as vocational training, job placement, and work tolerance will be practicable in the smaller areas.

Results

Tables I to VI show the results of 2 years' work. In comparing the figures for 1955 and 1956, close agreement will be noted in "Case distribution by age group" (Table II), "Diagnoses by age group" (Table III), and the "Unimproved" category in Table IV. It appears that the rather loose system of collecting data is able to reproduce itself from year to year with a fair degree of reliability.

TABLE I
WORK ACCOMPLISHED

Year	1955	1956
Patients Treated	3,948	3,868
Treatments Given	66,677	72,823
Cases Assessed for Treatment Results	2,109	2,156
Cases Not Assessed	466	406
Total Cases Closed During Year	2,575	2,562

TABLE II
CASE DISTRIBUTION BY AGE GROUP

Age Group (yrs)	Year	
	1955	1956
Under 40	405	400
40-64	907	963
Over 64	797	793

Note.—The distribution for the 2 years agrees very closely. Approximately 20 per cent. are under age 40; 50 per cent. in the middle years and 30 per cent. over 64.

The diagnoses shown in Table III are based on those given by the patient's doctor at the time of requisitioning physiotherapy. It is probable that diagnostic errors are frequent. For example, many cases of so-called rheumatoid arthritis would not answer to strict diagnostic criteria. The categories "Other Rheumatic Diseases" and "Non-rheumatic Diseases" comprise a heterogeneous group. Because of the unreliability of this diagnostic data, no attempt has been made to assess treatment results according to disease category.

TABLE III
DIAGNOSES BY AGE GROUP

Age Group (yrs)	Diagnosis	Year	
		1955	1956
Under 40	Rheumatoid arthritis	19.0%	18.4%
	Marie-Strümpell spondylitis	5.4%	6.8%
	Osteo-arthritis	13.8%	13.0%
	Other rheumatic diseases*	21.8%	29.4%
	Non-rheumatic diseases	40.0%	32.4%
	Total No. of Cases	405	474
40-64	Rheumatoid arthritis	24.6%	26.1%
	Marie-Strümpell spondylitis	1.6%	2.0%
	Osteo-arthritis	44.1%	36.5%
	Other rheumatic diseases*	16.4%	20.9%
	Non-rheumatic diseases	13.3%	14.5%
	Total No. of Cases	907	1,115
Over 64	Rheumatoid arthritis	21.4%	21.3%
	Marie-Strümpell spondylitis	.5%	.1%
	Osteo-arthritis	64.2%	62.7%
	Other rheumatic diseases*	7.6%	6.3%
	Non-rheumatic diseases	6.3%	9.6%
	Total No. of Cases	797	937
Grand Total		2,109	2,526

* Other rheumatic diseases include rheumatic fever, non-articular rheumatism, gout, infectious arthritis, collagen-vascular disease, and intervertebral disk disease

The patient is assessed by the physiotherapist when treatment is started according to the Functional Capacity Code shown in Appendix A. A second assessment is made when the case is closed and the comparison between the two assessments is

TABLE IV
RESULTS OF TREATMENT
(see Appendix B)

Age Group (yrs)	Grade of Response	Year	
		1955	1956
Under 40	Complete Remission	19.4%	13.7%
	Much Improved	30.0%	31.1%
	Improved	42.0%	49.5%
	Unimproved	8.6%	5.7%
	Total No. of Cases	405	402
40-64	Complete Remission	10.0%	6.3%
	Much Improved	37.4%	32.0%
	Improved	41.3%	49.9%
	Unimproved	11.3%	11.8%
	Total No. of Cases	907	965
Over 64	Complete Remission	8.7%	6.0%
	Much improved	32.6%	30.6%
	Improved	41.8%	45.8%
	Unimproved	16.9%	17.5%
	Total No. of Cases	787	795
Grand Total		2,099	2,162

graded according to the Response Code (Appendix B). The physiotherapists are instructed to avoid undue optimism in this assessment but the degree of error is uncertain. As the assessment of treatment results in a given patient is made when the treatment is ended, long-term patients may remain within the group under treatment and thereby avoid assessment. The potential bias of this source of possible error has been assessed by conducting a cross-sectional survey at the end of 1956 of the duration of treatment of patients on the active treatment rolls at that date (Table V). Approximately 90 per cent. of the patients on the rolls at the end of 1956 had been under treatment for less than 2 years, so that only 10 per cent. or less of patients treated were omitted from assessment. As long-continued treatment cannot be taken to imply unsatisfactory results, this small group is not considered to influence unduly the total response.

TABLE V
DURATION OF TREATMENT OF ACTIVE CASES ON TREATMENT ROLLS AT THE END OF 1956

Patients	Duration of Continuous Treatment (yrs)		
	Over 2	1 to 2	Under 1
Arthritic	142	100	813
Non-arthritic	11	10	123
Total	153	110	936

Approximately 20 per cent. of patients whose treatment was completed during 1955 or 1956 were not assessed. Some improved and took jobs, some died, some stopped treatment of their own accord,

and some were not available for other reasons. It is difficult to estimate how the exclusion of these patients may have affected the results; it is unfortunate, but probably inevitable, that a certain proportion of assessable patients will always escape evaluation. Assessment of results of treatment in the rheumatic diseases is limited by the lack of statistical knowledge of the course of the disease in a comparable group of untreated patients.

The patients described in the Tables were also being treated by their own physicians, so that any improvement is not attributable solely to the rehabilitative efforts of the society. In addition, it is well known that some of the diseases under treatment have a natural tendency to remission. However, the assessment is based on functional capacity, which is related more directly to disability than to disease activity. Conditions such as rheumatoid arthritis, the inflammatory stage of infectious arthritis, and the disability immediately consequent upon surgery or accidents tend, to some degree, to improve with time. In some cases improvement may be due to the patient's own determination to become fit again, and in others the degree of disability may be so slight that ordinary activities will reduce it significantly. On the other hand, the disability consequent upon such conditions as osteo-arthritis, Marie-Strümpell spondylitis, and severe rheumatoid arthritis will not usually correct itself without specific physical treatment. Furthermore, against the tendency in some cases to spontaneous remission can be placed the tendency in others to steady progression to severe deformity and disability.

One of the principal benefits to be derived from good physical therapy and rehabilitation is the prevention of deformity. As the efforts of such a programme succeed in reducing the number of chronically disabled persons in a community, they must be directed increasingly towards early treatment and the prevention of disability in new patients. The response code shown in Appendix B cannot demonstrate improvement in the many patients who were already in Class I at the initiation of treatment. Nor can such a survey give credit to improvement in morale, general well-being, and adjustment to community life, which are legitimate goals in rehabilitation.

Discussion

The results shown in the Tables indicate that the rehabilitation measures provided in this programme are both effective and beneficial.

The improvement data shown are self-explanatory. The number of cases "Unimproved" has remained approximately constant from year to year. Improve-

ment of one or more classes can be taken to imply a significant improvement in the ability of the patient to engage in useful employment, and in the case of the severely impaired, improvement to the category of partial self-care would imply that some person acting as custodian could be released to gainful employment elsewhere. Between 40 and 50 per cent. of those aged less than 64 years showed a definite improvement in employability status.

Table VI shows the distribution of patients treated in the various types of establishment.

TABLE VI
PLACE IN WHICH TREATMENT WAS GIVEN IN 1956

Patients	Place of Treatment	No. of Patients
Arthritic	Hospital	332
	Home	546
	Treatment Clinic ..	2,316
	Total	3,194
Non-arthritic	Hospital	197
	Home	93
	Treatment Clinic ..	302
	Total	592
Grand Total		3,786

Note.—Some patients received treatment at more than one place and the above figures are approximate. A relatively large proportion of arthritics received treatment at home. This emphasizes our experience that many arthritics, if denied home physiotherapy, are denied all physiotherapy. On the other hand, large numbers of arthritics are treated in clinics, which we find most desirable for making the best use of the physiotherapist's time, for availability of equipment, and for general economy.

The value of rehabilitation may be demonstrated more adequately on patients under close supervision in rehabilitation centres (Robinson and Bradley, 1957). It would then be logical to conclude that similar less intensive measures in small communities would produce similar benefits. The British Columbia Division of the Canadian Arthritis and Rheumatism Society has demonstrated the feasibility of a well-equipped centre providing a treatment and rehabilitation service for the small population centres scattered throughout a large province.

Summary

The rehabilitation facilities provided throughout widespread areas of a Canadian province by a voluntary society is briefly described. A summary of the statistics gathered by the society over a 2-year period is presented. The inherent limitations in such a statistical survey are noted, but the conclusion is drawn that the society does much valuable work in preventing and alleviating disability and invalidism.

REFERENCE

Robinson, H. S., and Bradley, E. J. (1957). *Canad. med. Ass. J.* 77, 131.

La réhabilitation dans les maladies arthritiques
Observation portant sur deux ans

RÉSUMÉ

Les facilités de réhabilitation procurées dans des régions très étendues d'une province canadienne, par une société bénévole, sont brièvement décrites. Un résumé des statistiques réunies par cette société durant une période de deux ans est présenté. On prend note des limitations inhérentes à ce genre d'études statistiques, mais on conclut que la société accomplit un travail très important dans la prévention et l'atténuation des incapacités et des infirmités.

La rehabilitación en las enfermedades artríticas
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SUMARIO

Se describen brevemente las facilidades de rehabilitación en regiones muy extensas de una provincia de Canada, ofrecidas por una sociedad benévola. Se presenta un sumario de estadísticas recogidas por esta sociedad durante un período de dos años. Se notan las limitaciones inherentes a este tipo de estudios estadísticos pero se concluye que la sociedad hace un trabajo muy útil en la prevención y el alivio de incapacidad e invalidez.

APPENDIX "A"

CATEGORIES OF FUNCTIONAL CAPACITY

Class	Designation
I. <i>Unimpaired or Slightly Impaired</i>	Functional capacity adequate to perform all normal activities of daily living without the use of prosthetic or other appliances despite slight intermittent discomfort or limited mobility of one or more joints.
II. <i>Complete Self-Care</i>	Functional capacity adequate to perform the majority of normal activities of daily living with or without the use of prosthetic or other appliances; able to feed, dress, perform toilet, and leave house without assistance from a second person.
III. <i>Partial Self-Care</i>	Functional capacity adequate to perform some normal activities of daily living with or without the use of prosthetic or other appliances; able to feed, dress, and perform toilet, but may require occasional assistance from a second person, and unable to prepare meals or unable to leave house without assistance
IV. <i>Severely Impaired</i>	Functional capacity insufficient to perform the normal activities of daily living with or without the use of prosthetic or other appliances; requiring regular assistance from a second person in one or more of the following: feeding, dressing, performing toilet, or getting about indoors in wheelchair or otherwise.

Note.—Patients in Class I or II are probably fit for gainful employment. Patients in Class III might be employed in special circumstances. Patients in Class IV are unemployable and would usually require the custodial services of someone who might otherwise be gainfully employed.

APPENDIX "B"

RESPONSE CODE

Grade	Designation
I. <i>Complete or Apparent Remission</i>	No apparent evidence of disease activity.
II. <i>Much Improved</i>	Functional capacity shows improvement of one or more classes.
III. <i>Improved</i>	Functional Capacity shows improvement within classes, e.g., a person remaining in Class IV may now be able to perform one or more of the major activities of daily living, such as feeding, dressing, etc., or a previously unemployed person may become employed or employable.
IV. <i>Unimproved</i>	The patient is functionally unchanged or worse.