REHABILITATION AFTER STROKE: TRADITION AND FUTURE

L. Havezova, P. Yordanova, T. Kostadinova*

*Department of Neurology and *Department of Health Management,*
Medical University of Varna, Varna

The measurement of the structural disorders after stroke can be carried out by estimating the personal deficit and then generalized as a degree of invalidity. The present study focused on 65 stroke patients. They were followed-up and underwent an early neurorehabilitation course. The analysis of an extensive body of literature and the results obtained from our clinical investigations enabled to discuss the relationship between the elements, e. g., diagnosis, planning, intervention and assessment involved in the management of the neurorehabilitation process. Based on the combination of standardized indices and scales the authors suggest a unified rehabilitation profile enabling them to evaluate and monitor the motor and cognitive deficit. Thus, objective prerequisites are established for determining the priorities. monitoring the efficacy and the possibilities for prognosis of terms and outcome of the conducted rehabilitation training.

The high rate of stroke morbidity and mortality as well as the severe social and economic consequences for the patients, their families and the community make the issue of rehabilitation of utmost importance. In September 1995, at the PanEuropean meeting for a consensus on treatment of stroke organized by the regional offices of the WHO for Europe and the European Consulting Council on stroke the following goals of the treatment of stroke were formulated for Europe (1995-2005):

a) drop in lethality in the first month after stroke below 20%; b) prevention of stroke relapses and drop in the lethality after the second year below 40%; c) increased functional independence of the survived from stroke above 70% after the third month, and d) increased quality of life (2). Points 3 and 4 in the above quotation mark clearly the role and the importance of rehabilitation in this type of pathology. According to the WHO definition /

Address for correspondence:
L. Havezova, Dept. of Neurology, Medical University, 55 Marin Drinov St, BG-9002 Varna, BULGARIA E-mail: neurol@asclep.muvar.acad.bg

1980/ neurorehabilitation is an active process aiming at "fulfilling of the optimal physical, mental and social potential as well as a possibility for the individual's integration in a suitable environment" (3,8). Having in mind the scientific criteria adopted by the European federation of Neurological Sciences (EFNS) (June 1997) on neurorehabilitation and the rehabilitation standards in their annexes we aimed at suggesting a program for rehabilitation training and problem-situation solving which focus on deficit and are directed towards decreasing disability in stroke survivors.

The need for a multidisciplinary approach to the patients' problems prompted the establishment of a complex assessment program of a new type, including possibilities for screening, monitoring and prognosis as well as follow-up of the individual rehabilitation program efficiency. In conditions of limited resources in the field of health care it was necessary to make a realistic evaluation of the achievements so far by means of the management tools and then define the strategy for the future.

MATERIAL AND METHODS

Subject to our study were 65 patients (28 males and 37 females) aged 60,3 13,2 and admitted to Second Clinic of Neurology, Department of Neurology, Medical University of Varna for treatment after stroke, all of them with varying degree of motor, speech and cognitive impairment. Patients with total dependence and those with total recovery were excluded from the studiy. After an early rehabilitation course conducted under clinical conditions, the health status of some patients was followed-up in the neuropsychological consulting room after 1, 3 and 6 months up to one year after the event. Information data were obtained at the patients' examination and from structured interviews with the persons nursing them under home conditions.

All the patients were tested in the following order:

1. The functional capacity of every participant in the working group was registered at admission, on discharge from hospital and followed-up in ambulatory conditions by means of the Barthel Index (BI)

2. Pulses Profile (PP) scale characterizing the functional deficit of the health and psychosocial status and the communicative abilities of the patient

3. Functional Independence Measure (FIM) for the measurement of the global functional deficit

4. McMaster Health Index (MMHI) for the quality of life assessment

5. Neurorehabilitaion profile including specialized data bank for patients with organic central brain diseases (1)

6. Expert system for diagnosing speech impairment (1,9).

RESULTS AND DISCUSSION

The main processes, included in the rehabilitation cycle are: diagnosis, planning, intervention and assessment. The effective management in this continuum is a key issue in making the correct strategic decisions and increasing the quality of the rehabilitation programs (2).

The diagnostic process was subject to categorization of four levels in the degree of impairment according to the constellations of the International Classification of Impairments, Disabilities and Handicap (8). By means of a more modern BI modification we divided the studies patients in three subgroups according to the degree of pronouncement of their motor deficit at a personal level (Fig. 1). This index and its temporal dynamics afterwards was included in our expert program both because of its high significance and its correlation with the remaining indices and scales cited above. Its monitoring during the rehabilitation program in combination with PP enabled us to follow the actual possibilities for each individual, the necessity for support and the dynamics in the communicative and psychosocial status. By means of FIM we managed to enlarge the scope of day-to-day activities characterizing the global deficit in our patients. The priorities in this modern scale are subject to discussion of another publication of ours (4).
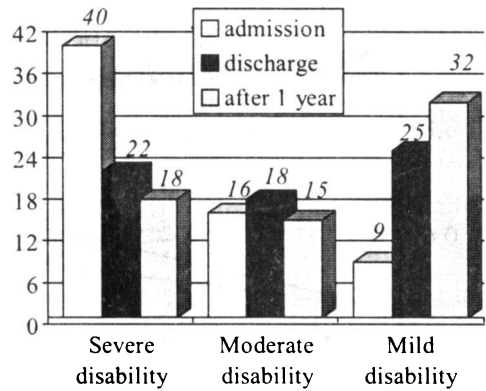

Fig. 1. *Comparison of bartel Index before and after rehabilitation*

An important emphasis in the diagnosis is the measurement of the parameter "quality of life " as a pragmatic functional assessment of the daily physical, psychic and social activity of the individuals determined by his/her ability to live up to the personal standards of filling-up (3). The analysis of the data obtained in our study indicated a significant approximation of the social and emotional status values irrespective of the differences in evaluation of the physical functional status (Fig. 2). The patients' age was also found to be of importance, those aged 50-65 having a significantly decreased MMHI as compared to the younger ones. This is particularly true for the part "active utilization of leisure time". We observed a correlation between the decreased MMHI values and the degree of depression manifestation even in cases of minimum registered motor deficit. The reduced number of social contacts and
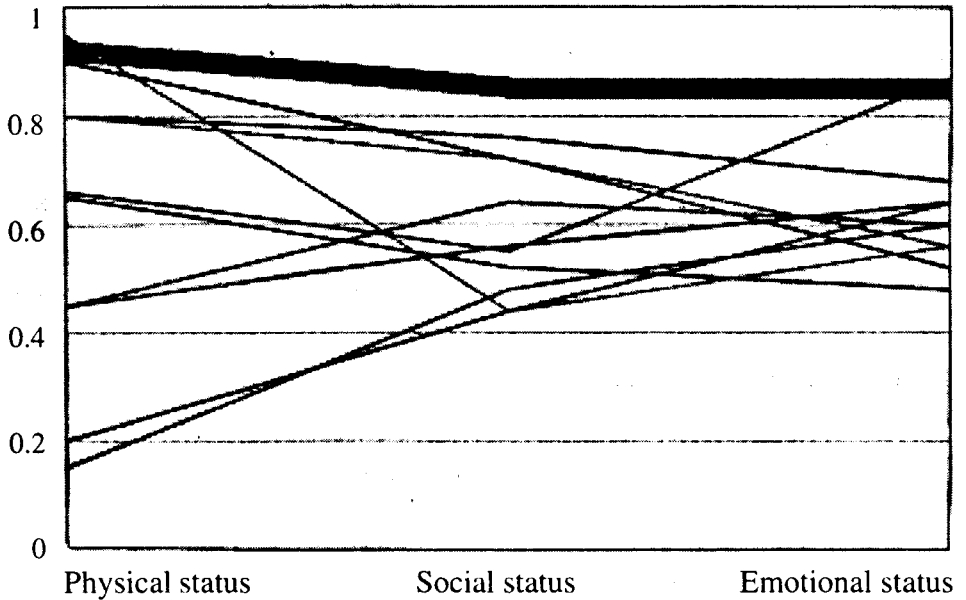
Fig. 2. McMaster Health Index results

the poor emotional adaptation decrease considerably this parameter. Our findings are in accord with other results published (5,6).

The information obtained using the quoted scales and indices is particularly topical and useful but still insufficient for the setting up of an adequate rehabilitation program. Having studied the information value of the separate diagnostic parameters and their impact on the global human functions, we established a unified neurorehabilitation profile as a package of significant manifestations (1). Our three-years' experience with this model gives us grounds to accept its relevant prognostic value with possibilities for defining priorities when working out the individual recovery programs (4).

An expert system for aphasic disorders diagnosis was adopted for defining the degree of speech impairment (9). It enabled us to monitor the results from the neuropsychological investigations of the speech functions. This diagnosis is of particular importance for conducting the long-term speech rehabilitation. The practical application of this system is determined not only by the possibilities for diagnosis and dynamic follow-up of the speech status but also in training conditions through active seeking for specific deviations during the neuropsychological testing.

The combination of methodological elements from cybernetics, linguistics and information theory with the application of dichotomy tests is a dis-

tinctive feature of modern cognitive psychology (8). The improvement of the functional communicative abilities of patients with aphasic disorders will comprise our next step in reducing their disability and enhancing their self-esteem and adaptation to the environment.

REFERENCES

1. Хавезова, Л., К. Тенекеджиев, П. Йорданова. В: Основни проблеми в неврологията. Под ред. Е. Хаджипетрова. Пловдив, Полиграфия АД, 1994, 15-16.- 2. Barnes, M. P. *Europ. J. Neurol.*, **4**, 1997, No 4, 325-331.- 3. Bowling, A. Measuring Disease. Buckingham-Philadelphia, Open University Press, 1995, 175-187.- 4. Havezova, L., D. Minchev, P. Yordanova, F. Kirov. *Scr. Sci. Med.*, **29**, 1997, Suppl. 4, 11-16.- 5. Kelly-Hayes, M. C. Paige. *Neurology*, **45**, 1995, Suppl. 1, 820-823.- 6. King, R. B. *Stroke*, 1996, 1467-1472.-7. Linacre, J. M., A. W. Heinemann, B. D. Wright, C.V. Granger, B. B. Hamilton. *Arch. Phys. Med. Rehab.*, **75**, 1994, 127-132.- 8. Wade, D. T. Measurement in Neurological Rehabilitation. Oxford, etc., Oxford University Press, 1992, 4-33.- 9. Yordanova, P., L. Havezova, D. Minchev, S. Tzekov. *Europ. J. Neurol.*, **3**, 1996, Suppl. 5, p. 123.

Рехабилитация след мозъчен инсулт - традиции и бъдеще

Л. Хавезова, П. Йорданова, Т. Костадинова*

*Катедра по неврология и *Катедра по здравен мениджмънт, Медицински университет-Варна*

Резюме: Обсктивизирането на структурните увреждания след мозъчен инсулт се проявява чрез измерване на персоналния дефицит и глобализира като степен на инвалидност. Базирайки се на богат литературен материал и собствени климатични наблюдения,авторите разглеждат взаимовръзката между отделните елементи (диагностика, планиране, интервенция и оценка), включени в невровъзстановителната програма. На базата на комбинация от стандартизирани индекси и скали авторите създават единен рехабилитационен профил, позволяващ оценяване и мониториране на моторния и когнитивен дефицит. потози начин се създават реални педпоставки за определяне на приоритетите, проследява се ефективността и възможностите за прогнозиране сроковете и изхода от проведения курс възстановително обучение.