Fate of Stroke Patients Transferred to a Long-Term Rehabilitation Hospital

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SUMMARY The rehabilitation outcome of 25 elderly hemiplegic patients discharged from the rehabilitation facilities of an acute general hospital and admitted to a long-term facility hospital was evaluated. Only those patients who had been on a rehabilitation program and were discharged after an average of 11 weeks because of lack of progress or severity of their functional and/or neurological disability were considered for this study. Twenty-two patients were wheelchair bound on admission and severely dependent in most self-care activities. Improvement in function and performance occurred in ten patients, while 13 patients remained unchanged. Among the improved patients, eight became ambulatory and independent in activities of daily living (ADL), eight became independent from a wheelchair level, and eight returned home or to the community. The average stay of the patients in the chronic rehabilitation care facility was seven months, although all the patients reached their maximum level of performance within six months. It appears from this study that some hemiplegic patients require a long and intensive rehabilitation program.

Introduction

OF THOSE PATIENTS SURVIVING a stroke, 39% to 42% will make a complete functional recovery, 25% to 32% will become ambulatory and independent even in the presence of various neurological deficits, and 27% to 35% will remain incapacitated. 1,2 It is the purpose of this paper to report on the small group of this last category of patients. These patients were admitted to an acute general hospital following the onset of their stroke, and rehabilitation treatment was considered a failure after at least eight weeks of therapy in the acute general hospital, the average being 11 weeks. After being placed on treatment, each patient’s hospital course was reviewed at three-month intervals, and the functional level assessed according to the following categories: Category 1: independent in activities of daily living (ADL) and ambulatory, Category 2: independent in ADL but nonambulatory, and Category 3: dependent in ADL and nonambulatory. There were 15 patients with right-sided hemiplegia and ten with left-sided hemiplegia. Eight patients had a moderate degree of aphasia, predominantly expressive type. The average age of these patients was 67 years.

Methods

All hemiplegic patients admitted to the rehabilitation facilities of the Bird S. Coler Hospital from July, 1970, to June, 1973, were screened.* An average of 80 stroke patients were treated annually. Twenty-five patients were noted to have been transferred because of lack of progress in the functional and/or neurological picture after 8 to 43 weeks of treatment. The Department of Rehabilitation Medicine at Bird S. Coler Hospital is a 120-bed service which receives patients from other acute general hospitals throughout New York City. The Coler reimbursement rate per patient is $208.58 per day, regardless of the length of stay.

Results

Eleven of the 25 patients gradually progressed to become fully independent in ambulation and ADL (Category 1), 13 patients remained in Category 3, and one patient became independent from a wheelchair level (Category 2). The average stay was seven months (range: 2 to 14 months), any improvement occurring during the first three to six months; no further functional improvement was evident in any patient after six months.

Twelve patients returned to the community where they lived before the stroke (mostly home); eight patients (Category 3) were transferred to a chronic custodial institution; three were re-admitted to an acute general hospital because of other medical problems; and two died while waiting for disposition (myocardial infarction).
Discussion

Grades of recovery and outcome of patients with “stroke” have been widely reported by different authors.1, 2 There is reasonable agreement on the “poor” outcome of a certain number of surviving “stroke” patients; their number is widely estimated to vary from 19% to 35%.

With the growing need for physical medicine and rehabilitation treatment and the associated mushrooming financial expenditures for facilities, questions about the proper selection of patients for therapy, the economy of the methods used, and the practicality of the results of therapy are coming to the forefront more and more. It is for those patients who after the initial acute cerebral insult appear to remain in a sort of limbo, not deteriorating but not progressing in any direction in their functional recovery, that questions like “How long do we treat this type of patient?,” and “When do we stop treatment?,” usually arise and beg for an answer.

We do not have sound clinical criteria or objective laboratory tools to scientifically answer these questions. It is evident from the results reported in this study that, despite the initial lack of progress and what, for all practical reasons, was the initial “failure” during the first few months following a stroke, a good number of “poor” patients could still be helped. The results also show that a certain number of patients require longer periods of therapy in order to reach their maximum potential.

What is more relevant, however, is the observation that for certain patients it takes a longer time before they start to show any evidence of favorable change.

References

Ischemic Brain Edema and Compression Brain Edema

Water Content, Blood-Brain Barrier and Circulation

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SUMMARY Two experimental models of brain edema have been produced in rats. Some animals underwent bilateral carotid artery ligation (BLCL), while others received extradural compression by a rubber bar. The characteristics of these conditions were compared by Evans blue injection and by the colloidal carbon perfusion method. Although both models produced an increase in the water content of brain tissue, a blood-brain barrier leak to Evans blue was observed only in the compression edema model. The steroid drug, hydrocortisone, diminished the water content of the edematous brain caused by compression but had no effect on that produced by BLCL. The cerebral circulation, as studied by colloidal carbon perfusion, revealed a vasodilation pattern in those animals who underwent bilateral carotid artery ligation, while vascular damage was observed in the compression edema model.

Since brain edema is a very important clinical problem, a number of clinical and experimental studies have appeared. Several models of brain edema have been experimentally produced by different methods and under varying circumstances. In the absence of a classification properly established on an understanding of the mechanisms involved in brain edema, confusion besets the study of its etiology, pathological course, and treatment. Klatzo1 proposed a useful classification of the brain edemas, dividing them into (1) cytotoxic and (2) vasogenic types. This definition contributed greatly to the clinical and experimental study of the pathophysiology of brain edema. In this laboratory, the authors have developed two experimental models of brain edema in rats: (1) brain edema by the bilateral carotid ligation and (2) compression brain edema. The former can be considered a suitable model to elucidate the effect of an ischemic insult on brain edema. The latter is a modification of the model developed by Ishii et al.2 using the rat brain. When the integrity of the blood-brain barrier was examined in these two models, an apparent discrepancy was observed in the staining of Evans blue. Sensitivity to the steroid, hydrocortisone, was also different in the two models. In addition, studies with the colloidal carbon perfusion method showed that there were two patterns of change in the cerebral circulation under these experimental brain insults. These findings are of interest to the study of the characteristics of brain edemas.

Methods

Wistar strain rats of both sexes and weighing 100 to 120 gm were used in this experiment. The authors felt the variation in the brain water content might be influenced by the
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Stroke. 1976;7:76-77
doi: 10.1161/01.STR.7.1.76

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