which grows in the United States. Its seeds contain the pyrrolizidine alkaloid monocrotaline which when given to rats always causes pulmonary arterial hypertension. Another plant, *Crotalaria fulva*, causes veno-occlusive disease in the liver in man in the West Indies, but its alkaloid fulvine is also a potent cause of pulmonary hypertension in rats. Much closer to home is the ragwort, *Senecio jacobaea*, which contains several alkaloids that will give rise to pulmonary hypertension in laboratory animals. This material can be obtained in "health stores" in Great Britain.

Recently in Western Germany, Switzerland, and Austria there has been an epidemic of "primary pulmonary hypertension," which has been considered by some to be related to the anorexigen aminorex fumarate. In this epidemic, and particularly in the controversy as to whether anorexigens are concerned in its causation, it has become a point of central importance as to what the clinician means by his diagnosis of "primary pulmonary hypertension." Though some cardiologists in Europe seem confident that they can diagnose "primary pulmonary hypertension," to a pathologist this seems to be a blanket clinical term, describing three diseases. These are classical primary pulmonary hypertension—which is a disease of the pulmonary arteries—pulmonary veno-occlusive disease—which is a primary disease of the pulmonary veins—and recurrent thromboembolism—which is a disease of blood and systemic veins. Dr. Oakley, do you believe that the average clinician is justified on clinical grounds in making a clear diagnosis of one of these pathological entities?

DR. OAKLEY: I believe that the venous type of pulmonary arterial hypertension should be diagnosable clinically, but that this condition is *genuinely* rare and not being missed. The distinction is based on the presence of pulmonary oedema, which is patchy and intermittent, simulating pneumonia. Patients with *pre*-capillary pulmonary hypertension due either to recurrent embolism or to dietary factors have peculiarly clear lung fields at all stages of their disease right up to the end.

Conclusions

PROFESSOR BISHOP: I failed to diagnose the condition in life in this patient, because I did not know about the condition at the time. Looking back, we should have attached more significance to that late radiograph, but clinical pulmonary oedema is a late feature, and only preterminal in this case. If there should prove to be any kind of therapy for this condition, we have got to recognize it earlier than that. Would pulmonary angiography help us here?

DR. OAKLEY: I do not think it would. Our own patient, a man in his early 30s, had symptoms which went back to when he was a student in Edinburgh. He had had recurrent episodes diagnosed radiologically as pneumonia. Angiography at those times might have shown patches where venous filling did not occur but not when the *x*-ray film was clear.

PROFESSOR HEATH: No one should think that the possible relation between anorexigens and pathology of the lung and pulmonary circulation is a problem confined to the West Germans and the Swiss, for on the market in Britain is the anorexigen chlorphentermine (Lucofen), which is closely related structurally to amphetamine. This drug produces the most striking changes in the lung parenchyma of rats.

APPOINTMENTS OF SPEAKERS

(1) Professor D. A. Heath, Professor of Pathology, University of Liverpool.

(2) Dr. C. M. Oakley, Consultant Physician, Hammersmith Hospital, London, and Honorary Lecturer in Clinical Cardiology, Royal Postgraduate Medical School.

(3) Dr. G. de J. Lee, Consultant Cardiologist, United Oxford Hospitals.

(4) Dr. A. J. Robertson, Consultant Physician, and Physician to Heart Department, Liverpool Royal Infirmary, and Clinical Lecturer in Medicine, University of Liverpool.

(5) Professor J. M. Bishop, Professor of Medicine, University of Birmingham.

(6) Dr. G. Howitt, Consultant in Cardiology, Manchester Royal Infirmary, and Lecturer in Cardiology, University of Manchester.

(7) Dr. M. D. Winson, Lecturer in Pathology, University of of Liverpool.

Details of this case, previously reported as "Pulmonary veno-occlusive disease," (Heath, D., Segel, N., and Bishop, J., *Circulation*, 1966, **34**, 342), are published by permission of the American Heart Association Inc.

We are grateful to Professor J. M. Bishop for allowing us to discuss the case of this patient who was under his care. This conference was recorded and edited by Dr. W. F. Whimster.

Hospital Topics

Controlled Trial of Treatment for Cerebral Concussion

MIKAEL RELANDER, HENRY TROUPP, G. AF BJÖRKESTEN

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Summary

In a study designed to compare two types of treatment of cerebral concussion, 178 patients were allocated to a routine treatment or to an active treatment group; in the latter a good prognosis was emphasized, the patient was mobilized early and given physiotherapy. In the routine treatment group the average time off work was 32 days compared with 18 days in the active treatment group. Physiotherapy seemed to be particularly valuable in old patients and in those with exaggerated fears about their condition. It is suggested that throughout their illness and follow-up, patients with cerebral concussion should be under the care of one doctor, one who is particularly interested in the subject and that more propaganda is needed

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among hospital staff that concussion is not necessarily a dangerous condition.

Introduction

The attitude of the medical profession to cerebral concussion has shown an interesting development over the past 100 years. In 1863 John Hilton[1] wrote: "The brain after concussion is at first unequal to its ordinary duties. ... It recovers itself slowly; it then soon becomes fatigued from use; and if claims are made upon it too soon after the injury—that is, before the structural and physiological integrity is re-acquired—the patient is very likely to suffer. Cerebral exercise or mental occupation should always be short of fatigue." The second world war brought about a change in Anglo-Saxon attitudes, and it was realized that many patients with concussion appeared to benefit from active rehabilitation.[2-5] Several Scandinavian writers have expressed similar views.[6-8]

There has been no controlled study of the effect of active treatment. It can be argued that patients who had been got out of bed early after concussion had a mild injury, and that those with more severe injuries had been kept in bed because of nausea, vertigo, and headaches and thus had been given the bed rest that their injured brain supposedly required.

We report here a study of the effect of active treatment on cerebral concussion compared with routine treatment widely current at present. In particular we wanted to know how an active regimen would affect time in bed, time in hospital, and time off work.

Patients and Methods

The 178 patients in this series had been admitted to the Töölö Hospital by other surgeons. All the patients were treated in the department of orthopaedic and traumatological surgery. The following patients were excluded from the trial: (1) patients with severe brain injuries and brain injuries requiring surgery (these patients were admitted primarily to the department of neurological surgery); (2) patients living outside the catchment area of the hospital, who could not be expected to attend regularly for follow-up; (3) homeless patients; (4) patients under 6 years of age and old patients who had had severe vertigo before the injury; (5) patients with severe injuries of the spine, spinal cord, and chest; (6) patients with injuries of the abdomen requiring surgery; and (7) patients with fractures of the pelvis, femur, or crus or large fractures of the foot.

All the patients were seen and assessed by the same doctor within 36 hours after admission, usually within 12 hours. The patients were grouped according to age, sex, type of insurance carried, presence or absence of other injuries, and duration of post-traumatic amnesia. Within each of these groups the patients were allocated at random to routine or active treatment.

Patients allocated to routine treatment were treated by the registrar or house officer in charge of that particular ward. They were usually allowed to get up when they felt like it, but no special effort was made to make them get up. They were given information about their injury if and when they asked for it. No arrangements were made for them to see the same doctor at follow-up clinics.

Patients allocated to active treatment were managed by the doctor who assessed them initially. They were seen daily, the nature of their injury was explained to them, they were encouraged to get up as early as possible, and physiotherapy was started. This was supervised by the same physiotherapist for all actively treated patients, and she also saw the patients twice a week in the outpatient department until the end of treatment. The patients were encouraged to attend follow-up clinics, where they were seen by the same doctor who had treated them in hospital.

To indicate severity of the injury we measured duration of post-traumatic amnesia and the incidence of skull fracture and associated injuries (see Tables I-III). The following criteria were used to assess the effect of treatment: time in bed in hospital, time in hospital, and time off work (or school).

A questionnaire was sent to the first 68 patients admitted to the series (within the first three months) at least one year after their injury; 59 were returned. These were classified by one of us, who did not know which treatment the patient had received.

Student's t test was used throughout; significant means $P < 0.01$, and highly significant $P < 0.001$.

Results

There were no statistically significant differences between the two groups in any of the following: sex distribution; type of insurance carried; age (23% were under 21, 57% 21-50, 11% 51-65, and 9% over 65); apparent severity of injury (Tables I and II); and incidence of associated injuries. Facial injuries, however, which had not been considered in the stratification scheme (Table III), were significantly more common in the routinely treated group.

TABLE I—*Length of Post-traumatic Amnesia in 178 Patients with Cerebral Concussion*

	Up to 10 min	11-60 min	Over 60 min
Routine treatment ..	44	24	28
Active treatment ..	38	15	29
Total	82	39	57

TABLE II—*Incidence of Skull Fracture in 178 Patients with Cerebral Concussion*

	Fracture	No Fracture
Routine treatment ..	27	69
Active treatment ..	18	64
Total	45	133

TABLE III—*Associated Injuries in 178 Patients with Cerebral Concussion*

	No Other Injuries	Associated Injuries
Routine treatment ..	32	64
Active treatment ..	40	42
Total	72	106

In the group treated routinely there was a higher incidence of facial injuries, which had not been allowed for in the stratification scheme. The difference was statistically significant; no definite reason could be found for this.

There was no significant difference between the two groups in duration of bed rest or length of stay in hospital, but the time off work was highly significantly greater among the routinely treated patients (Table IV). Comparisons between post-traumatic amnesia and occupation on the one hand and time off work on the other are given in Tables V and VI.

TABLE IV—*Duration of Bed Rest and Stay in Hospital and Time Off Work*

	Mean No. of Days			No. of Patients
	Bed Rest	Hospital Stay	Off Work	
Routine treatment ..	3·2	7·6	32·2	96
Active treatment ..	1·6	6·6	17·7	82

TABLE V—*Mean Number of Days off Work according to Duration of Post-traumatic Amnesia*

	Amnesia Up to 10 min	Amnesia Over 10 min
Routine treatment ..	33·0	31·5
Active treatment ..	18·8	14·7
Total	26·4	23·9

TABLE VI—*Mean Number of Days Off Work according to Occupation*

	Manual Labour	Others
Routine treatment ..	37·9	26·4
Active treatment ..	22·3	13·0

Within both treatment groups there was a significant difference in time off work between manual labourers and others.

TABLE VII—*Condition of 59 Patients at One-year Follow-up elicited by Questionnaire*

Treatment Given	No Symptoms	Minor Symptoms	Some Disability	Disabled	Total
Routine ..	15	7	2	1	25
Active ..	21	10	2	1	34

The results of the one-year follow-up of patients admitted during the first three months of the study are shown in Table VII. Patients in the actively treated group attended follow-up clinics more regularly than the routinely treated patients.

Discussion

We have shown that active treatment aimed at good contact between patient and doctor, early ambulation, and physical training gave better results than the hospital routine, which, we believe, is not an uncommon one. In contrast the actively treated patients were seen by the same doctor, were encouraged to attend at follow-up clinics, and were given a great deal of attention from both doctor and physiotherapist while in hospital. We cannot say which if any of these many factors was decisive. But since the difference in results can hardly be disputed we think they show that even cerebral concussion can be "treated"—that is, with interested handling the patients can be returned more quickly to their own social surroundings and to their work. After the controlled trial was finished two smaller groups were established to determine the effect of medical attention without physiotherapy against physiotherapy without much medical attention. Proper information and encouragement by the doctor in charge seemed to be more important, but the two groups were not absolutely comparable, so conclusions are only tentative.[9]

Quite a few patients, particularly among the younger ones, did well as soon as they had been told that their condition was not dangerous. For these patients physiotherapy is presumably not necessary. We believe that for old patients and for those who have fears about their condition physiotherapy is helpful in getting the patient back on to his feet quickly. Naturally, the co-operation of the nursing staff is essential in getting the patients up early.

One year after the concussion, however, there was no longer any difference between patients who had received the routine treatment and those who had received the active treatment. Even so, getting the patient back to work two weeks earlier seems worth the effort.

We also believe that it is important for the patient to be seen at follow-up by a doctor he knows. Within the organization of a big hospital this can be difficult to arrange and, here, the smaller hospital and the family doctor have a definite advantage. Within a big hospital patients with cerebral concussion are thought so simple to handle that they are seen by the most junior doctors, whose appointments are short. There is consequently little continuity in the care of these patients. This is a failing that should be remedied wherever possible, since interested care for these patients is quickly rewarded.

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Second Opinion, Please

Acute Polyarthritis

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The entry of two adults into the consulting room, instead of the usual one, always alerts the sensitized general practitioner: it usually betokens heightened anxieties, and probably also a significant degree of illness. The atmosphere becomes charged immediately, and the six minutes allocated for the appointment is almost certain to be extended.

Mr. and Mrs. X.Y. are a young, social class I married couple, well known to their general practitioner. Two weeks before this visit Mrs. X.Y. had been found to be pregnant, but had also had acute episodes of pain—first in her chest and then in an ankle. It was the continuation of such unexpected pains in early pregnancy that precipitated her husband to accompany her to her own doctor on this occasion.

The history revealed that, about four weeks earlier, she had had a sore throat for which she did not seek treatment. Ten days later this was followed by chest pain, pain in the left ankle, and in the left elbow. Two days later she developed pain in the right knee—in summary, multiple joint pains following a respiratory infection. On the first two consultations, with her doctor's partner, she had been given analgesics and an expectant role advised.

On examination she had a tachycardia (96/minute), low grade fever, a normal throat without lymphadenopathy, and swelling and heat in the right knee and the left ankle. Blood pressure was

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