

TABLE IV.—Distribution of 127 Children with Acute Intussusception Among 121 Family Doctors in Newcastle-upon-Tyne, From 1944 to 1949

Cases per Doctor	No. of Doctors	Total Cases
0	50*	0
1	44	44
2	12	24
3	8	24
4	4	16
5	1	5
6	1	6
7	0	0
8	1	8
Total ..	121	127

* Estimated from the average number of doctors practising in Newcastle-upon-Tyne during the survey period.

by some practitioners. The main facts were also presented to a well-attended local meeting of the Newcastle and Northern Counties Medical Society. But a new influence has been used in the letters to doctors when the children were discharged from hospital. These have been worded in the last few years with the need for early admission in mind. When the doctor's suspicions of the disease had been quickly aroused and the child reached hospital in good time, confirmation alone was required to complete the happy story. When, however, diagnostic hesitation lasted beyond the second day, the writers of the discharge letters have ventured to discuss those points in the history which might have suggested earlier diagnosis and have led to earlier admission if their significance had been recognized.

As a result of conferences with practitioners we feel that the discharge letter, or a telephone conversation, should usefully go beyond the mere statement of what has been done in hospital, since it is concerned with the fate of a particular person for whom the doctor is responsible. The letter (or the conversation) is an instrument of postgraduate education and commands more interest and attention among practitioners than comprehensive reviews of the subject in journals. Moreover, this exchange is a two-way process of education: it helps the hospital doctor to appreciate the difficulties of practice, from which he may learn what sort of letters to write.

Whatever the full explanation may be, we suspect that these letters, the contents of which would be extended to partners and colleagues by the inevitable discussion among doctors of the unusual or exciting case, may have assisted general practitioners in the North-east to make a notable contribution to the better management of acute intussusception. In any case we are grateful for the facts and offer our thanks to all doctors concerned, both in the home and in the hospital.

Our thanks are due to Mr. H. Campbell, of the Nuffield Department of Industrial Health, for his expert comments on the figures presented in this paper.

REFERENCE

Morrison, B., and Court, D. (1948). *British Medical Journal*, 1, 776.

A report entitled "Towards the Better Care of the Elderly" has been issued by the Public Health Department, Salford. The report, which has an introductory note by Lord Amulree commending the care of the elderly in their own homes, is an account of two informal conferences, sponsored by the local health department, which were held at Salford this year on May 4 and 5. The first conference dealt with the medical aspects of the care of the aged, and the second with the co-operation of home and hospital in this task. A limited number of copies of the report may be obtained, free of charge, on application to the Medical Officer of Health, Health Department, 143, Regent Street, Salford, 5.

ACTIVITY IN ADVANCING YEARS*

BY

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Full health, and with it usefulness and happiness, depends upon activity of mind and body. This applies equally to all age groups, though the amount of mental and physical work which can be undertaken at different ages and by different persons must vary widely, even among healthy individuals. The elderly are no exception to this rule, and the subject of activity is closely associated with modern ideas of their treatment, which embrace psychological and physical methods. In order to strengthen my arguments for retaining or obtaining the maximum activity amongst them it may perhaps be profitable to consider briefly first the results of inactivity both to the individual and to the community, and then to discuss therapeutic measures (medical and social) against such a background.

Anatomically and physiologically, man has been designed for an active existence in the upright or vertical position, and any grave departure from such, for any appreciable length of time, inevitably brings troubles, both mental and physical. Anyone who has inherited patients who have been bedridden for a long time will readily appreciate the picture here described.

Effects of Inactivity on the Individual

Confined to bed, most patients develop rarefaction of bone, stiffness of soft tissues, and contractures. Muscles atrophy, tendons shorten, and limbs assume malpositions varying with circumstances. The type and degree of contracture will depend upon the position in bed. When propped up for long periods of time flexion of hips and knees is almost inevitable. Feet assume a varus, valgus, or equino-varus position, according to the physical disability, the mental state, and the condition of the bedclothes. The elderly when nursed sitting in bed show a great tendency to keep the upper limbs adducted to the trunk in a position of flexion. This results in stiffness and contractures of shoulders and elbows, and is always more marked in the left upper limb with right-handed persons. Also there is a tendency towards some degree of fixed flexion of the head on the chest—often in minor degrees only and therefore not easily noticed when the person is propped up. Such contractures and stiffness lead to difficulties in changing patients' positions in bed and hence lead to the development of pressure sores.

With lowered metabolism, reduced body needs, and the absence of all exercise and voluntary movement, obesity often follows. Such obesity, which is a well-recognized feature in these conditions, is frequently aggravated by the patient's inclination to eat between meals (often of carbohydrate foods), and shows earliest in the anterior abdominal wall. This additional deposit of fat adds another factor to the difficulty of movement in bed, and indeed often prevents a patient from sitting up. It also affects the heart, as such general increases tend to infiltrate the myocardium and so reduce normal cardiac efficiency. Overweight and immobile, such patients show a reduced respiratory excursion and develop signs of

*Read in opening a discussion in the Section of Geriatrics at the Annual Meeting of the British Medical Association, Liverpool, 1950.

basal congestion which are potential sources of active pulmonary infection.

Lack of exercise produces a sluggish bowel action, with resulting constipation. In passing, I would draw attention to the fact that much of the so-called incontinence of faeces is in reality retention of faeces with overflow—a condition not sufficiently recognized. On the nervous and psychological side, such conditions soon produce a degree of mental apathy, especially among those who are less erudite or who, by reason of poor sight and/or poor hearing, are somewhat isolated from their fellows.

Such apathy produces two main results: (1) irregular sleep, with a tendency to sleep between meals by day, and a failure to sleep well at night; and (2) laziness, resulting in incontinence of urine, which further adds to the difficulty of preventing pressure sores. Occasionally, instead of incontinence of urine, retention occurs. This is usually found in men—often in those who have a mild degree of prostatic enlargement. I have, however, met a few such cases in women.

The last case was in an old woman aged 90 who developed retention of urine when put to bed at home following a fractured right humerus. On admission she was in great discomfort with a grossly distended bladder. In spite of all encouragement she could pass only a few ounces of urine normally. Catheterization undertaken slowly over a period of several hours resulted in withdrawal of 5½ pints (3.1 litres) of urine which showed no abnormal constituents and was sterile on culture. She had a small sessile urethral caruncle, which I do not think was in any way responsible. She was allowed up in a chair daily and at the end of a week normal micturition was re-established.

Effects of Inactivity on the Community

Failure to retain or obtain the fullest possible activity, independence, and useful work amongst the elderly will inevitably lower the general standard of health. With increasing numbers of elderly persons in our population it is obvious that as many as possible must be helped to remain as active members. The more invalids or bed-fast patients there are the greater the burden will be on personnel of all kinds engaged in looking after them and the greater will be the financial strain on the country.

It is obvious, then, that all must play their part in helping the elderly to remain active and retain their full independence—by providing domiciliary service as soon as it is needed, along with recreational interests—and it is certain that the first call should be to the relatives and friends.

There must, I feel, be general agreement on the advisability of maintaining or restoring activity even if there is divergence of opinion on methods, and I therefore propose to discuss the subject from three angles: (1) Conditions relating to a maintenance of personal independence, with or without useful work. (2) Therapeutic methods necessary to bring about a return of useful function and a measure of personal independence where this has been lost. (3) Conditions required for creating and maintaining optimum morale.

Maintenance of personal independence with or without useful work depends upon the attitude of mind of both the individual and those around him, and the patient's medical and social condition.

If the mental attitude of those around an elderly person favours inactivity, or they are quite unaware of the methods by which activity and interest can be maintained, then, indeed, unless help is given, he will become inactive and an unnecessary burden to himself and the community.

Overindulgent relatives often persuade an elderly person to take more and more rest and to do less and less; at the other extreme we have the inattentive people who offer nothing to the aged, who in turn rebel and demand everything.

Patients who develop increasing arthritis, considerable cardiac failure, pernicious anaemia, or a mild cerebrovascular catastrophe all need treatment; but these conditions are not infrequently overlooked in the early stages and consequently result in long periods of inactivity.

Finally, an elderly person whose living conditions include an outside toilet, accommodation on the third or fourth floor, or no domestic help may well give up the unequal struggle and demand full service.

It is obvious that such psychological, medical, and social conditions call for full preventive measures. These measures include, in addition to education of the public when needed, full medical treatment when required and use of all domiciliary services which are available, and an increase where these are insufficient.

Treatment

To provide a well-run medical service for the elderly the importance of activity must be well understood, and methods must be fully implemented to ensure it.

Without due care inactivity is apt to follow any illness (medical or surgical) which necessitates a period of time in bed. It therefore behoves all those concerned to regard such a period of rest in bed as a "danger period." With considerable years of personal experience, and after reading widely on the subject, I know of no reasons *on age alone* for recommending a long stay in bed. Indeed, I would suggest that, in treating the elderly, rather than deciding how soon they may safely get up, one should consider very carefully whether it is really necessary and wise to put them to bed.

Although any elderly patient may become inactive after a long time in bed, there are certain conditions which particularly predispose to this state: painful feet from any cause; cerebro-arteriosclerosis with some added minor medical or social problem; cerebrovascular accidents; cardiac disease, in failure; arthritis; progressive nervous disease—for example, Parkinsonism; and post-traumatic and post-operative conditions.

Full activity, which must be aimed at in all cases, depends upon psychological and physical fitness, and these are closely interrelated. Without a degree of mental activity physical progress is very slow, and in the absence of physical progress mental activity wanes appreciably. It must therefore be the aim of the physician to get and to maintain a good balance.

In order to ensure the fullest activity and the most complete rehabilitation the following general methods should be adopted: (1) a detailed history of the patient's illness and earliest symptoms and signs must be obtained from him or his relatives or friends; (2) a full clinical examination, including a rectal examination and blood-pressure reading, must be made before starting treatment. Only with these prerequisites can a sound plan be made and detailed treatment arranged. Many diagnoses are missed in the elderly owing to failure to undertake such preliminaries. With as full knowledge of the patient as possible, treatment must be undertaken by a team, and the members of this team must work in complete harmony if full success is to be obtained.

Such a team will usually include:—In the home: a general practitioner; domiciliary services; relatives and friends. In

the hospital: the physician and his medical staff; nursing staff; physiotherapists; occupational therapists; almoner; dietitian, etc. To complete the picture it is necessary that general practitioners and physicians should work together concerning the patient's future.

When treating sick elderly patients the following principles should be adhered to.

1. A patient must be encouraged to retain full independence for his personal needs whenever possible while under treatment—for example, he should wash and feed himself, brush his teeth, comb his hair, and assist in dressing himself. Nothing that a patient can do for himself should be done for him.

2. If his medical condition has diminished his independence or rendered him immobile, then full treatment by means of physiotherapy, occupational therapy, or speech therapy must be arranged to overcome his disabilities.

3. At all times a patient must be encouraged to persevere with treatment, to keep active in every possible way, and to interest himself in his own full recovery and in his surroundings.

4. Exercise should be frequent and for short periods of time, as the elderly tire easily and yet need repetitive treatment.

5. The time allowed up or for exercise should be laid down in detail, as only with such precision can a true assessment of progress or fatigue be measured.

6. Great care should be taken to ensure that conditions are good as regards flooring, sanitation, temperature, light, etc.; that clothes, especially shoes, are comfortable, well-fitting, and warm enough but not too heavy; and that appliances, including prostheses, are correct in every detail. Crutches and sticks particularly should be the right length or walking may be difficult, or even dangerous.

7. Equipment should be provided with a view to giving the maximum help to patients under treatment, and this includes rails overhead and bed-end pulleys, armchairs, wheel-chairs, self-propelling chairs, etc.

8. All medical conditions must be treated in order to avoid general deterioration from one disability hindering progress of another.

Exercise

In most cases well-planned treatment giving successful results does not depend on elaborate apparatus, but on the knowledge of the therapeutic principles involved. In general, massage is to be avoided, as it is time-consuming and of less value than exercise. Exercises should be undertaken by the patient after careful education, and these will give him an interest in his progress. The physiotherapist, where available, should give regular attention to such patients, partly individually and partly as group therapy. Ideally, treatments should be frequent and short—not more than 15 minutes. Where, however, physiotherapists are not able to give all the treatment necessary some members of the nursing staff—and especially, in my experience, the State-enrolled assistant nurses—can be taught to undertake valuable work in this connexion; but, whatever help is available, the overall supervision must remain with the physician and should never be handed over entirely to ancillary staff.

Exercise may be passive or active, and in many instances a combination of the two methods will prove best. All joints need exercise through a full range of movements daily.

Arthritis

In the case of arthritics, where flexion deformities are commonest, an increased range of movement must be aimed at. This can best be undertaken by a series of graded exercises against springs of varying tension with the limbs suspended in slings—Guthrie Smith frame or an improvised modification. I have found that where pain interferes with exercise it is sometimes profitable to give radiant heat immediately before treatment. This can be provided

equally well by any of the recognized radiant-heat machines or by an electric heat cradle placed over the affected part. Active movements against resistance improve muscle tone. Movements between fixed points give some measure of range of movement, and should be encouraged for the sake of accuracy.

Much valuable work can be undertaken on these lines either with the patient lying on the bed with all bedclothes removed, or with him sitting on the edge of the bed swinging his legs and thus overcoming flexion deformities of the knees.

When planning suitable exercises it should be remembered that the aim of treatment is to restore full function so that the patient may be independent regarding his personal needs. It is therefore necessary that all exercises should serve this purpose.

Many patients can be more safely nursed sitting in an armchair by day than reclining in bed, where they tend to become less active. Before a patient can walk he can sometimes get about in a self-propelling wheel-chair, which greatly improves his morale.

When a number of patients can be grouped together for such exercise the natural element of competition is often most stimulating. Encouraging a patient to get into his own clothing (and this is much easier for a woman than for a man, because the clothing of the former is much looser) is in itself very good physiotherapy.

Other exercises which are useful include sitting up from a lying-down position, by any means in the first instance and later with the arms folded, contraction and relaxation of abdominal muscles while lying flat on the bed, and regular quadriceps drill. Arthritics should be told that small degrees of flexion deformity of hips and knees are in themselves no absolute bar to walking.

From bed exercises arthritics should proceed to exercises in standing and walking—in the early stages holding on to a rail, and with the help of sticks, crutches, or poles. Sticks should always be provided with a rubber ferrule, and may be ordinary one-legged sticks, or have three or four legs; the latter I have found of great use in my department when a patient feels insecure with an ordinary stick. Crutches are useful where the upper limbs are able to support them, and are sometimes preferred to sticks. When arthritis is mainly confined to the lower limbs, and is especially marked in the lumbo-sacral spine, I have found duralumin poles provided with rubber ferrules at both ends particularly helpful. Poles have a limited use, but when acceptable they are very good, as they overcome the tendency to stoop.

It is important that patients should never be allowed to try to walk until they are able to rise from a sitting position holding on to a rail, but otherwise unaided, and to maintain the erect position correctly balanced.

Hemiplegics

Patients with hemiplegia resulting from a cerebrovascular accident are from a medical point of view one of the most interesting groups to re-educate and guide—and at the same time one of the most neglected. They range from those who are very easy to those who call for the greatest experience, patience, and detailed work.

From the very moment of catastrophe these patients, if they are to do really well, need detailed care and treatment. On the one hand, it is essential to prevent development of stiffness and contractures, particularly of the affected shoulder-joint, and on the other it is necessary to give re-education as early as possible. As soon as

the patient is conscious he must be taught to play an active part in his own re-education, and his activities must be carefully supervised.

Bed exercises in the early stages are followed by exercises while learning to stand, and, later, by practice in walking with a stick and a little assistance, and, finally, by walking with a stick unaided on the flat and then on the stairs.

During the treatment of all these conditions suitable occupational therapy should be provided, and general interest be stimulated by encouraging visiting, reading, conversation with other patients, and by wireless programmes (via headphones and *not* loudspeakers, unless a room can be set aside for such purpose).

If these principles are adhered to then success in treatment will depend upon early and full treatment, attention to detail in an atmosphere of optimism, strength of the team-work, confidence of the patient in the team, and the experience and activity of the physician.

Summary

The results of inactivity both to the individual and to the community are outlined, and an argument is put forward for the maintenance of full activity and independence among the elderly and for their rehabilitation.

Inactivity may be brought about by psychological, physical, or social conditions; preventive measures against these are described.

Medical conditions which particularly predispose to inactivity are enumerated, and principles underlying their management and treatment are discussed. Warning is given that long periods of rest necessitated by illness must be regarded as "danger periods."

Points stressed are: that good results depend on a high standard of medicine, on really good team-work, and on an atmosphere of optimism and activity; combined with the patient's confidence and co-operation in his treatment.

Some suggestions are made with regard to the treatment of arthritics and hemiplegics.

USE OF INTRAVENOUS AMPHETAMINE SULPHATE IN ACUTE BARBITURATE POISONING

BY

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The possible use of intravenous amphetamine sulphate in conjunction with other remedies in cases of acute barbiturate poisoning is seldom considered in this country. When Alles (1933) was investigating the pharmacological properties of this drug in dogs under barbiturate anaesthesia he found that the animals often awoke after its injection. Myerson (1940), in a review of the rationale of amphetamine sulphate treatment, mentioned its possible value in counteracting the effects of barbiturate poisoning. Freireich and Landsberg (1946) reported 14 cases of this condition in which the drug was used; but few of these were severe, and the maximum dose employed was 400 mg. Newman and Feldman (1948) have reported a series of cases of poisoning in which massive doses of picrotoxin were used, supplemented in four by amphetamine sulphate. In the treatment of one of their patients who was 135 hours in coma, 14,190 mg. of picrotoxin and 1,950 mg. of amphetamine sulphate were given.

Pharmacological Aspects

Barbiturate poisoning may cause the death of the patient either by depression of the respiratory centre or through the development of bronchopneumonia. The former is more likely to occur with very large doses and with the short-acting derivatives, whereas the latter is associated with prolonged coma. Specific treatment is therefore directed at stimulation of the respiratory centre and hastening the recovery of consciousness. Picrotoxin has an established place in the management of these cases, principally as a stimulant of the respiratory centre. It has much less action on the cerebral cortex, but on account of its convulsant properties must be used with care.

Amphetamine is widely known as a cerebral stimulant, and its power of awakening both men and animals under the influence of various narcotics has often been reported (Reifenstein and Davidoff, 1938; Myerson *et al.*, 1939), although it has been found to increase the death rate in mice after LD50 doses of barbiturate (Chakravarti, 1939). The action of amphetamine on the respiratory centre has been the subject of conflicting reports, and no consistent stimulant action can be demonstrated. In addition to its effect on the central nervous system amphetamine is a powerful sympathomimetic agent. It produces a rise of blood pressure and should therefore be used with care in older patients and hypertensive subjects. Disturbances of cardiac rhythm following its administration have also been reported (Anderson and Scott, 1936; Waud, 1938).

The very large amounts of amphetamine used in Newman and Feldman's case and in that reported below raise the question of the fate of the drug in the body. When given by mouth in normal doses, part is excreted in the urine, in which it may be detected for some days (Beyer and Skinner, 1940; Monroe and Drell, 1947), and the remainder is probably metabolized (Beyer, 1942). There are a few reports in the literature of the results of large doses being taken by patients not under the influence of narcotics. Transient hypertension, excitement, or confusional states have followed the ingestion of amounts up to 450 mg. (Ehrich *et al.*, 1939; Monroe and Drell, 1947). A few deaths have been attributed to the drug, usually after much smaller quantities, and presumably due either to idiosyncrasy (Smith, 1939) or, as in one case, to subarachnoid haemorrhage (Gericke, 1945). The administration of large doses to monkeys has been found to produce toxic degeneration of the nerve cells and perivenous haemorrhages in the meninges (Ehrich *et al.*, 1939).

Case Reports

Over a period of 18 months intravenous amphetamine sulphate has been used, usually in conjunction with other remedies, in the treatment of seven cases of acute barbiturate poisoning. Four were mild cases with coma lasting a few hours, and in three of these picrotoxin seemed more effective in awakening the patient, although the amount of amphetamine used was probably inadequate in the light of subsequent experience. In the fourth, recovery was little accelerated by either drug. The other three cases had points of particular interest and are recorded in more detail.

Case 1

A woman aged 29 was admitted two and a half hours after taking 80 gr. (5.3 g.) of sodium amytal. The stomach was washed out and picrotoxin (100.5 mg. intramuscularly and 115.5 mg. intravenously) was administered over the next 17