EARLY TREATMENT OF POLIOMYELITIS

BY

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Poliomyelitis in this country did not assume epidemic proportions until 1947. Experience since then seems to indicate a greater endemicity than in the past, with a greater liability to seasonal epidemics in various areas.

To ensure good treatment and to obtain accurate information from a relatively small number of cases, it is essential that the care of the patients be delegated to a team composed of members from all branches of the profession interested in the condition. Such a team ensures an organization capable of expansion in the event of a large epidemic.

It is usually the custom in this country for acute poliomyelitis cases to be admitted initially to isolation hospitals and subsequently transferred to orthopaedic hospitals for treatment of the convalescent and chronic stages. Co-operation between the staffs of these hospitals is essential to a comprehensive plan of treatment.

Since 1947, in the Oxford area, the treatment of poliomyelitis has been so arranged that continuity is obtained from the onset of the disease through the isolation and orthopaedic hospital stage to the final assessment and treatment of the residual paralysis. It is the purpose of this paper to describe the present organization, and to emphasize several important points of treatment in the early stage.

Organization in the Oxford Area

In Oxford the aim is to bring together the staff of the fever hospitals and the Wingfield-Morris Orthopaedic Hospital, and at the same time enrol those from other branches of the profession with special experience or interest in the disease. The poliomyelitis team includes the M.O.H., the medical staff of the fever hospitals, a neurologist, and a specialist in virus diseases. The patients are admitted to the fever hospital. A member of the staff of the orthopaedic hospital is notified, and he visits the patient in consultation with the staff of the isolation hospital. After three weeks patients with severe residual paralysis are transferred to the orthopaedic hospital, while those with a minor degree of paralysis are discharged and arrangements made for their follow-up at orthopaedic clinics in the area.

A member of the staff of the orthopaedic hospital is responsible for the orthopaedic treatment from the onset, and he works in close co-operation with the medical and nursing staff, who actually carry out the treatment. In addition to arranging admission of paralytic cases to the long-stay hospital, the orthopaedic surgeon helps in the diagnosis of cases suffering from other complaints which are sent in as poliomyelitis during an epidemic; we have come across tuberculosis, osteomyelitis, "observation hips," and other orthopaedic conditions. The orthopaedic surgeon visiting the fever hospitals is responsible for ensuring that early deformities are mitigated, and he has recourse to other members of the team for advice when required. At the end of the poliomyelitis season he reports to the team on any problems encountered and brings forward suggestions for future epidemics.

Every year a demonstration of the respirator is arranged for nurses and housemen, and there are informal talks and discussions to which all members of the team are invited.

Treatment in the Fever Hospital

Apart from consideration of the infectious period, the three weeks' stay in the fever hospital which is customary at present is of the greatest value and should not be reduced. The patient has time to get over the painful irritable stage and can begin to adjust his mind to the future before being transferred to another hospital.

The psychological aspect of the disease is given special consideration by the fever hospital staff, medical and nursing, and even the orthopaedic surgeon can help by assuring the patient that an interest will be taken in resettling him when finally discharged. It is of the utmost importance that from the very onset of the disease the patient should be as relaxed and confident as possible in the circumstances. Patients obtain comfort in the knowledge that they are already being supervised by a member of the staff of the hospital in which they may spend a considerable time when the acute stage is past. This appreciation has often been expressed.

Such continuity is important with respirator patients, who are naturally disturbed by a change of hospital, and extra visits to such patients are well worth while, as the greater their confidence the easier it is to overcome the psychological difficulties associated with removing them from the respirator.

General Nursing Care

The patient in the acute stage is admitted to the fever hospital under the physician in charge, who carries out an approximate estimation of what muscles are affected. Extensive muscle-testing should not be done in the first few days. Problems of respiration, bulbar paralysis, urine retention, and general nursing are dealt with. Urine retention not responding to simple measures is treated by intermittent catheterization. In our patients no difficulty has been experienced in restoring bladder function in a few days, but in some cases bladder function may be abnormal for weeks or months.

The patient is nursed in a quiet cubicle, sedation by phenobarbitone is instituted, and codeine is given for pain. In the first few days the patient is often restless, and tends to change position frequently in order to gain relief from lumbar pain. In patients who cannot move, lumbar pain can sometimes be eased by placing a soft pillow under the lumbar spine for an hour at a time—if left longer the pain is apt to return. No elaborate positioning of affected limbs is attempted at this stage, apart from a foot-board and soft pillows supporting knees and arms. It is our aim to disturb the patient as little as possible.

Examination and Assessment

The orthopaedic surgeon is notified by telephone of the case and its approximate severity, and problems such as a tendency to overaction of a muscle group are reported. If there is any serious problem he visits the patient immediately, otherwise he waits until the fever has subsided and the patient is more co-operative. Young children should be visited early in the day, as they are unresponsive and difficult to assess when they are tired.

The patient is examined as fully as is necessary to obtain a reasonably comprehensive muscle chart, note being taken of any limitation of joint movement, neck stiffness, limitation of straight leg raising, and especially any tendency for a muscle to overact. On no account should a complete examination be made: minor errors in charting are preferable to the exhausting of muscles and patient. Muscle charts can be completed at subsequent examinations. After assessment, treatment is ordered.

Positioning and Passive Movement of Limbs

Limbs and spine are so positioned as to relax paralysed muscles and prevent the development of any overacting tendency in active muscles.

Spine.—If the bed and mattress are in good condition no fracture boards are used, as in some cases they aggravate the lumbar ache. The patient is allowed to roll on the side: frequent changes of position, and periods in the prone position, tend to ease back stiffness and pain in the early stage.

Lower Limbs.—The knees are supported by one pillow and the feet by a foot-board. When indicated, plaster back-

FIG. 1.—Method of suspension by felt sling from overhead beam. Use of bandage roll in maintaining thumb opposition is shown.

FIG. 2.—Improvisation of overhead beam using bed screen and cross-bar.

splints are used to control rotation or inequality of the leg muscles. The ankle is positioned according to the power of the muscles, but usually at a few degrees below the right angle, or more where there is gross weakness of the calf muscles.

Upper Limbs.—With paralysis above the elbow, the position is maintained by a broad felt sling under the elbow suspended from an overhead beam (Figs. 1 and 2). The shoulders are maintained at 75 degrees of abduction and

the elbow at 90 degrees of flexion; the wrist and hand are placed in the position of rest at the outlet of the felt. The thumb is maintained in opposition either by a suitably placed opening in the felt or by a roll of bandage in the palm. This method is comfortable for the patient, maintains accurately any position required, and is easily altered when it is desired to change position. Passive movements can be carried out with the minimal disturbance. The slight flexion of the hand at the outlet of the felt prevents hyper-extension deformity at the metacarpo-phalangeal joints and usually removes the need for additional splintage in the early stage.

Passive Joint Movement.—After the fever has subsided all joints are moved through a passive range twice daily, but the range must not be sufficient to cause pain or muscle resistance. Daily joint movement also ensures that early muscle resistance and tendency to deformity are reported to the orthopaedic surgeon at their onset.

Hot Packs

The over-zealous application of hot packs is exhausting to the patient mentally as well as physically. They are used only if there is persistent muscular tenderness or pain, and are applied to the painful areas and not to all the paralysed parts. Packs are renewed during a 20-minute period; this period is repeated according to the benefit obtained. Their use for a period just before sleep ensures a restful night. After the febrile stage children derive great comfort from immersion in an ordinary hot bath.

Summary and Conclusions

The organization which exists in Oxford for the treatment of poliomyelitis in the early stage is described. Co-operation between the staff of the fever hospitals and the orthopaedic centre ensures continual supervision of the patient through all stages of the disease.

Important aspects of treatment in the fever hospital are: general nursing care and sedation; examination and assessment; positioning and passive movement of limbs; hot packs.

The scheme of treatment described is designed to rest paralysed muscles and to prevent and overcome any tendency to early deformity likely to interfere with the patient's future activities.

This regime, when applied in the early stage of the disease, will usually overcome "muscle spasm" and consequent deforming tendencies by the time the patient leaves the fever hospital. When necessary the positioning should be continued after admission to the orthopaedic hospital.

Some patients have had little or no treatment in the early months of the disease, and in a proportion of these deformities due to abnormal overaction of muscle groups have been established. Deforming tendencies appearing in the early weeks of the disease must therefore be recognized and treated, and an attempt made to understand them.

At the Devon and Exeter Medico-Chirurgical Society on March 6 Dr. M. C. Binnie spoke of geriatrics, its scope and problems. He said that geriatrics should be regarded more as an outlook than as a specialty. Its outstanding contribution so far was its insistence on early activity. Contractures, bed-sores, incontinence, pulmonary emboli, and aspiration pneumonia were some of the sequelae of too prolonged a rest in bed. Cases of coronary thrombosis or congestive failure in the aged should be confined to bed for about half the time required by a younger person. Even before he got up much could be done for the elderly patient by simple physiotherapy. All who dealt with him should be encouraged to keep this principle of mobility constantly in mind. Next in importance came rehabilitation of body and mind. Occupational therapy, especially of a diversional type, could do much towards this end.