to the side of the bed. When these patients are up in their wheel-chairs or hand-propelled tricycles the tube is connected with a rubber urinal suspended from the waist and strapped on to the leg. As most of these patients have no feeling below their lesion the removal of calculi from the bladder is easy and does not call for an anaesthetic.

The daily toilet of the bladder is the essential detail in the treatment of paraplegics. Most cases are given mixtures as follows: (a) 20 grains of acid sodium phosphate in one ounce of water thrice on one day, followed by (b) 10 grains of urotropine in water thrice on the next day; and so on indefinitely on alternate days.

Trophic Ulcers and Bed-sores

A trophic ulcer is due to lack of circulation or to deficient innervation of the skin. A bed-sore is a nursing crime. We do not have bed-sores in this Home! A trophic ulcer is an inevitable occurrence and cannot be healed, but it can be kept surgically clean.

When a paraplegic patient arrives he must be put to bed, using fracture boards, an air bed, or, better still, a "dunlopillo" mattress, and at once his palsied limbs must be placed in the optimal position by means of cushions, sandbags, and the like, to avoid hyperextension or hypercontraction. The usual daily nursing measures must be adopted for the health and preservation of the skin, especially in those parts subject to pressure. A bed-cradle should always be used to keep the weight of bedclothes off the badly nourished and paralysed lower extremities. Remember that the patient can feel nothing "below the belt"; it is therefore imperative that constant watch be kept on the sacral region, the hips, and the lower extremities, so that any redness or excoriation may be treated without delay.

When the vertebral lesion has consolidated—say some eight to twelve months after the injury—it is well to encourage the paraplegic to sit up and get about in a wheel-chair or a hand-propelled or motor tricycle; but these patients must have padded seats and plenty of cushions to protect their not too well nourished seating apparatus. At this period, too, we advocate two or three baths a week. This does them good; it stimulates the peripheral circulation and relieves the kidneys of some of their burden. We have our baths at right-angles to the walls so that an orderly on each side can expedite and assist in the process.

Massage certainly increases the cutaneous and muscular tone, and even after years of disability it conserves hope and at any rate induces the patient to feel that something is being done. *Electrotherapy* I do advise in the early stages, and until it has been conclusively ascertained which groups of muscles are worthy of notice and therapeutic attack, but I consider that to continue electric treatment to irresponsive muscles is a waste of time and electricity.

The Incontinences

Incontinence of Urine.—In the male this is readily managed by the provision of a recognized pattern of rubber urinal having a penile sheath connected with a tube to a container which is strapped to the leg and emptied by a tap near the ankle. For the female I fear there is no adequate provision. The few cases of urinary incontinence in women that I have met with have been difficult to deal with adequately, and in spite of all sorts of apparatus and trials the condition is likely to be appalling. No doubt something will soon be done about this: it is very urgent.

Rectal Incontinence.—When these paraplegics have as it were settled down—say a year or two after their wounds—and they are able to get about in chairs and tricycles, we have found that a weekly or bi-weekly day in bed is

most useful. We call these "enema" days—when patients are given a high colonic injection of water, soap, and turpentine to empty the large bowel; this enables them to exist the remaining days of the week without incontinence. They can therefore go to entertainments, cinemas, etc., with almost complete confidence that there will be no unpleasant happenings.

Shock, Sleep, and Pain

In the early stages enough sedatives must be given to counteract shock, which is intensified by the contemplation of years of inaction and invalidism. Bromides are valuable. If these do not work, morphine may be necessary; but it is so easy for the paraplegic to become a morphine addict that I seriously counsel the withholding of its use unless pain is unbearable.

These people must have sleep: dial, adalin, soneryl, and all sorts of others may be used, but you may finally have to resort to morphine.

Conclusion

There are two points to remember: (1) in the initial stage the freeing of pressure on the spinal cord by laminectomy; (2) the unremitting nursing care of the whole body of the patient, and especially the daily toilet of the urinary tract, which of itself can prolong life for these unfortunate people.

After nearly seventeen years in charge of this Home for Paraplegics and after many years of direction in the management of these cases by the late Sir John Thomson-Walker, I feel that perhaps I may be forgiven for appearing didactic.

INTRAVENOUS ANAESTHESIA IN OBSTETRICS

BY

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In general practice, especially in times like these, obstetric operations have usually to be conducted with only the nurse or midwife as assistant. The difficulty and anxiety so often experienced with inhalation anaesthesia under these conditions led me, some four years ago, to a trial of intravenous anaesthesia as an alternative. It seemed to me that this method would add enormously to the patient's comfort, while at the same time it would very largely free the nurse, who, being relieved of the duties of anaesthetist, would be able to supply that extra pair of hands so invaluable.

Choice of Evipan

Evipan was chosen because it had been employed freely in all kinds of case. I used this drug throughout this series, having found no reason to change it.

I first tried evipan in cases needing repair of the perineum, and it gave complete satisfaction. I then employed it in low-forceps operations. I have given it in over 50 cases, and only once have I had to reinforce anaesthesia with open ether. The ideal case is that in which the head is on the perineum, when, with the aid of a small pair of forceps, such as those used and described by Wrigley, labour can safely be shortened. It was in just such a case that the unpleasantness and inconvenience of open ether or chloroform seemed often to outweigh the relief and advantages to patient and practitioner alike.

Some of the more difficult obstetric operations have also been carried out with evipan, with complete satisfaction so far as anaesthesia is concerned. One patient, a primi-

para, was delivered of a breech with legs extended, a leg having to be brought down. The child did very well, and the mother suffered no undue shock. In 3 cases persistent occipito-posterior positions have been manually rotated and delivery made with forceps, without undue hurry being experienced, and neither mother nor child appeared to suffer in any way.

In 6 cases the head was found to be unexpectedly "tight," and considerable traction was required to deliver the child. In 4 of these a perineal tear resulted, but this was repaired without any additional anaesthetic.

Evipan has been given, in rather smaller dose, to 7 patients just before the birth of the head, when forceps were not used. In one case trouble was experienced with the child after delivery—there being some delay in respiration. In the other 6 cases the children cried at once and there were no neonatal complications. In no case was there any excessive post-partum bleeding, and the placenta always appeared to separate quickly and easily.

Description of Technique

The technique which is now adopted has been modified with increasing experience, and I hope that the following brief description may be of value to others.

Having decided to deliver the patient, she is placed in the left lateral position and obstetric aid straps are applied. The type used has been that described by C. J. Penny (1933): one strap encircles the abdomen and is affixed to the head of the bed; the other holds the patient's hips flexed and passes over her neck. The buttocks and perineum are then thoroughly swabbed with dettol cream, and a swab covered liberally with dettol cream is left in the vagina.

The operator, gowned and masked and with bare washed hands, is now ready to administer the evipan. A prop is placed between the patient's jaws, and the nurse, standing by her head, helps in steadying the arm: a firm grip above the elbow will make the veins in the antecubital fossa more obvious. In every case 10 c.cm. of the 10% solution of evipan has been used. The first 3 or 4 c.cm. is injected quite quickly, and after a pause the remainder of the dose is given rather more leisurely—about a minute being taken over the whole procedure. In all my cases I have had the help of only the nurse or midwife; she remains at the patient's head, holding the chin well forward, and from the same position she is able later to support the patient's right leg by taking hold of the strap.

The operator now re-washes his hands and dons sterile gloves. The dettol cream swab is extracted from the vagina and is used for one last application to perineum and buttocks. Sterile towels are then used to cover exposed areas, after which a catheter is passed, the receiver being held by the nurse, who has it ready beside her. At this stage the forceps are applied to the child's head and the extraction is carried out in the ordinary way. When there has been the need for earlier sedation by chloral and bromide, or morphine, a very complete anaesthesia has been experienced, with a patient perfectly still. In one or two cases in which there has been no previous medication slight movement of the legs has been experienced, and it is for this reason that the obstetric straps are advised, for with them I have never been in any way inconvenienced by this tendency to move.

As has already been said, the children give no trouble; the third stage is passed rapidly, and the patient is usually recovering consciousness by the time one is ready to leave her. One of the ergot preparations is injected after the birth of the placenta, and it is always my practice to record

the systolic blood pressure before leaving the patient. Readings of under 100 mm. Hg (which have not been met with in this series) should be taken as a warning of incipient shock and should be countered by the usual methods.

During the past six months this method of anaesthesia has been adopted by Dr. C. J. Penny, honorary obstetrician to the Royal Hampshire County Hospital. He tells me that he has used it in over 20 cases, and that it has been uniformly satisfactory.

Summary

The advantages of intravenous anaesthesia in the easier obstetric operations are discussed.

In over 50 cases in which evipan sodium in 1-gramme doses has been used it has given entire satisfaction, and there have been no complications in the progress of mother or child.

A brief account of the technique is given.

REFERENCE

Penny, C. J. (1933). *Lancet*, 2, 1480.

EFFECT OF BENZEDRINE ON THE OCULOGYRIC CRISES OF PARKINSONISM

BY

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In the last few years several articles have appeared in American medical journals reporting the beneficial results which may be expected when benzedrine is administered in conjunction with stramonium or hyoscine to cases of post-encephalitic Parkinsonism (Solomon, Mitchell, and Prinzmetal, 1937; Finkelman and Shapiro, 1937; Matthews, 1938; Davis and Stewart, 1938). Of the symptoms discussed it would appear that oculogyric crises react best to this treatment—in fact, three of the four articles referred to claim that this symptom was relieved in every case in which it occurred.

The investigation described below was carried out on patients at the National Hospital for Nervous Diseases, Queen Square, and at the Royal United Hospital, Bath, in an attempt to reproduce these uniformly good results. It is impossible to control an investigation of this type accurately, certain criticisms of the dosage, and the shortness of the period of observation in some cases, being bound to arise. It is felt, however, that by concentrating on an isolated symptom, such as the oculogyric crisis, which can be recorded by the patient, a more accurate impression of the effect of benzedrine on post-encephalitic Parkinsonism will be obtained than by considering rigidity, tremor, or sleep disturbance, which are obviously more difficult to assess.

Seventeen patients were observed while under treatment with stramonium, hyoscine, or some similar drug, and a record was kept of their oculogyric attacks over periods ranging from two to twelve weeks. Benzedrine was then given in various doses up to 30 mg. a day in addition to the previous treatment, and the attacks were again recorded over similar periods. In two cases benzedrine was given alone.

In the table the average number of attacks per week is stated, as it is considered that this method will give the most accurate comparison between the cases. It should be realized, however, that in patients showing a small number