

carrying through a procedure which may be the only means by which life can be saved.

In many instances the subtemporal decompression affords relief; if it fails to do so, and if there is no response to a repetition of the alimentary dehydration, we may consider the advisability of repeating a subtemporal decompression on the opposite side, and if this fails we can but await events, with the satisfaction, however, of knowing that we have done all that it is in our power to avert disaster.

After-treatment

The after-treatment of head injuries may be summed up in the words "Go slow." Lasting harm may be done by an attempt to shorten the convalescence or to agree to an unduly early return to the stress of everyday life. The period of confinement to bed will depend upon the nature and extent of the injury; three to four weeks is a common average. A low diet with abundance of fluid is allowed, and half an ounce of magnesium sulphate each morning is a safe and efficient purgative. It is a good rule to give 10 grains of potassium bromide daily; it lessens the irritability of the central nervous system, and its employment at this early stage may prevent unpleasant sequelae in the future. For insomnia we use luminal (2 grains) or medinal ($7\frac{1}{2}$ grains) or soneryl (5 grains).

Sooner or later there comes a time when the question of resuming ordinary activity has to be considered. This is an anxious decision, and if we are to do the best for the patient it will be made the subject of experiment. A testing time when a graduated and provisional resumption of activity is permitted will be instituted. If there are sequelae in the form of giddiness and headache, mental fatigue, and inability to concentrate, we must recognize these as warnings that the time is not yet opportune, and the patient must be advised to extend his convalescence. This, the "aftermath" of head injuries, is in some respects the most difficult problem of all, but it is scarcely within our sphere for the moment, and I have mentioned it for one purpose only—that our consideration of the subject may be rounded off and reasonably complete.

W. Titkemeyer (*Med. Welt*, February 13, 1937, p. 209) draws attention to recent investigations on tobacco smoke, which consists of tars, nicotine, pyridine bases, the lower aliphatic acids, carbon monoxide, carbon dioxide, and ammonia. Nicotine is still believed to be its most poisonous constituent. Four drops are lethal in one-half to one minute; 40 mg. produce disturbances lasting twenty-four hours; five ordinary cigarettes contain a lethal amount of nicotine. The amount of nicotine absorbed by the body depends on many factors. It is detoxicated in the liver and excreted through the skin and kidneys. The gaseous contents of tobacco smoke are now said to have no effect on the general health. Its deleterious effect on the buccal mucous membrane is believed to be due partly to the raising of mouth temperature, especially in cigar and pipe smokers, and its property of getting saturated with water from the mucous membrane. These factors are more important than the chemical constituents of tobacco in the production of "smokers' catarrh." In surveying the literature the author is struck with the discrepancies in the findings of various authors, and he suggests, in the interests of public health, that a more scientific standardization in the investigation of tobacco smoke be adopted—namely, that the length to which a cigarette is smoked be indicated; that the humidity of the tobacco be noted; that the amount of tobacco smoked per cigarette or cigar be weighed; and that the length of the interval of smoking be accurately timed.

INSULIN SHOCK TREATMENT OF SCHIZOPHRENIA

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The insulin shock treatment of schizophrenia is well established on the Continent; the results, as summarized in Dr. Isabel Wilson's report for the Board of Control, must be regarded as sufficiently encouraging to warrant a trial of the method in this country. The treatment has therefore been instituted at the West Ham Mental Hospital, and the results, in an admittedly limited number of cases, are fully justifying what was initially regarded as in the nature of an experiment. In the preliminary consideration of this treatment the question first to be settled was how far it would be practicable, in view of the complicated technique, within the organization of an ordinary rate-aided mental hospital. It is the purpose of the present communication to show that with a well-disciplined and enthusiastic staff it can be undertaken in the infirmary ward of such a hospital without overtaxing the staff and without any serious interference with ward routine.

Administrative Arrangements

It was decided to use the male infirmary ward, which serves the whole of the male side (593 patients). In this ward there is accommodation for fifty-three patients. In the observation section there are nineteen beds, and two single rooms and a padded room are available. Projecting from this section is a bay of six beds; this was selected for the cases under treatment, with a view to disturbing other patients as little as possible. The male nurses work a forty-eight hour week in two shifts of four nurses each. Each shift comprises a charge nurse, a deputy, and two probationer nurses. The shifts work week about, mornings and afternoons.

Realizing the need for perfect staff co-operation, the two charge nurses had the treatment fully explained to them. The difficulties and dangers were stressed, but good care was taken to reassure them and to work up their enthusiasm. They were then given the Board of Control's Blue Book to read. Incidentally, it may be mentioned that the doctor responsible had had experience of hypoglycaemic states whilst working under W. Wilson Ingram (Sydney) during his researches into the massive dose insulin treatment of diabetes mellitus.

Treatment was begun on one patient, a case of severe catatonic dementia praecox. The whole course was carried through on this patient, no further cases being begun until the treatment had been finished, so that the nurses' interest was not divided. They thus became wholly familiar with the routine and gained confidence. It took a fortnight to work up to the shock dose (140 units). During each of the two weeks the afternoon shift which was not actually doing the treatment that week was repeatedly put through the "drill" (described later).

It was found useful for the doctor to pretend to be the patient, and to act as dramatically as possible the various crises that might be expected. By the end of the fortnight both shifts were perfect in their parts. The value of this training has since been demonstrated by the fact that no emergencies have occurred during the treatments which the nurses have not been able to deal with pending the doctor's arrival. Although a patient's appearance has

often been very alarming they have never cried "wolf," nor, on the other hand, have they ever failed to notify immediately any critical occurrence.

The first patient made an apparently complete recovery from his psychosis; the enthusiasm of the staff was therefore well maintained. Two patients were then treated concurrently, and we now have six beds occupied by patients undergoing active treatment. We have had no accidents. Altogether 205 shocks have been induced. There have been no administrative difficulties, and none are now expected. One walks into the ward and sees perhaps five patients deep in coma gravely shocked, and finds at the same time the other business of the ward being normally carried on.

General Results

All the patients treated have been advanced cases with marked, immediately discernible symptoms of dementia praecox. Five have completed treatment. Three have apparently recovered, one with great insight, since discharged. The other two are still being watched, their insight being developed by daily talks with a view to their adapting themselves well to life when they shall have returned to the outside world.

Of the two who have not recovered one is greatly improved and the other is unchanged. All except the one failure put on weight while actually under treatment. A sixth is nearing the end of his treatment. He is improving and has already lost his delusions and hallucinations, after an unremitting attack lasting eighteen months.

The Treatment

A typical shock proceeds as follows.

About two hours after a shock dose of insulin a change is observed in the patient. He sweats profusely and becomes drowsy. The pulse rate alters; it may accelerate or retard. Within about half an hour he becomes restless, tossing from side to side, at first moaning and later crying out.

Then, particularly in the first few days, furor may set in. He leaps up in bed, staring and crying out aloud. He throws himself about violently, and has the appearance of maniacally resisting a great fear. He froths at the mouth and his pupils dilate. He may beat his head and hands and feet frantically. This phase may last for fifteen minutes.

Coma follows and the patient lies shrunken into his bed, profoundly collapsed, with a diminished pulse; he is stertorous and ashy pale, and is bathed in a profuse sweat. Although the pupil still reacts to light the abdominal reflexes are lost and the plantar reflexes are extensor. He salivates profusely, and must be laid on his side to allow the saliva to run out. From time to time he may be convulsed. Occasionally a true epileptic fit may be seen with epileptic cry, a tonic stage with cyanosis, and a clonic stage.

After about an hour and a half he is given glucose solution through a nasal tube, which had been fixed in position during the stupor stage. In ten minutes he becomes conscious and the early excitement returns. He seizes hold of the attendant and wants to be reassured that he is not dying; he is grateful to be reassured, a most gratifying symptom in a lost apathetic and inaccessible patient. In another five minutes he is quiet but confused. He is now rubbed down and changed, and is ready presently for the dinner which he eats with good, sometimes ravenous appetite.

After several days of the treatment the excitement does not occur, and the whole induction and recovery is a

very quiet business. At this hospital we now premedicate the patients prone to epileptic fits during shock with 2-grain doses of prominal, and have not had any fits since commencing it. We regard this as an advance in technique.

Clinical Technique

During the treatment the pulse and temperature are recorded at 6 a.m. and 6 p.m. Urine is tested daily at 6 a.m. Slight glycosuria is common whilst the patients are undergoing treatment, but stops at the finish of treatment.

1. Preliminary Phase.—Ascertaining the shock dose.

Inject at 7.15 a.m. Start with 20 units intramuscularly, the patient fasting, and increase daily by 5 or 10 units according to progress. A common shock dose is 130 units. Subsequent shocks are easier to induce than the first, and after a few days it will be found possible to reduce the dose considerably.

2. Phase of Daily Shocks.—(No treatment is given on Sundays.)

(a) Note that the chart and urine are normal.

(b) Inject the insulin intramuscularly at 7.15 a.m.

(c) Thereafter feel the pulse frequently and record it at intervals of fifteen minutes. Take the temperature every hour; apply hot-water bottles if it is below 97°. Watch the respirations and be on the lookout for any blueness.

(d) The doctor passes the nasal tube lubricated with glycerin as soon as the patient becomes stuporous. It is fixed in position with adhesive strapping so that the part issuing from the nose and lying over the cheek is covered. This prevents it from being hooked out by the patient.

(e) At 12.15 p.m. pour in the glucose solution.

(f) As consciousness returns remove the tube. Give the patient two dessertspoonfuls of golden syrup, if he likes it.

(g) Take the patient out of bed; rub him down vigorously and dress him in front of the fire.

(h) Most important (perhaps a great part of the success of the treatment depends on this), someone must be continually at hand to reassure and "mother" the patient during his return to full consciousness.

(i) Ordinary dinner at 1 p.m.

(j) During the afternoon, at about 5 o'clock usually, the patient may go off into a coma again. Try to prevent this by giving glucose; the doctor should be called. The nasal tube is got ready. (This complication has been uncommon in our experience.)

The Team Drill

1. Administration of the Insulin.

The second nurse waits upon the charge nurse, who gives the insulin.

2. Passage of the Nasal Tube.

(a) The third nurse takes a test tube containing blue litmus paper, stands at the head of the bed, and steadies the patient's head.

(b) The doctor stands at the patient's right side.

(c) The second nurse hands the lubricated nasal tube and stands back.

(d) The doctor passes the tube.

(e) The charge nurse affixes the syringe to the tube, draws off about half an ounce of gastric juice, and squirts it into the test tube held by the third nurse. If the litmus turns red it indicates that the tube is in the stomach.

(f) The second nurse fixes the nasal tube in position with adhesive plaster and puts a wooden plug in the end of the nasal tube. Meanwhile the rest of the team are able to proceed with the next patient.

3. The Shock Stage.—During the shock period a nurse keeps very close watch, and the other two nurses remain within earshot.

4. Bringing the Patient Round.—During the preceding hour the glucose solution has been measured into pints and kept warm by one of the nurses not watching the patients. He now brings in these pints on a tray.

(a) The charge nurse affixes the funnel to the nasal tube and holds the funnel while the second nurse pours in the solution.

(b) The plug is reinserted and the two nurses move on to the next patient. The third nurse watches the patients who have had the glucose.

(c) At the first sign of consciousness by the patient the third nurse removes the plaster and withdraws the tube. He watches the patient carefully, since he may become very restless.

(d) All four (the doctor and the three nurses) assist in rubbing down the patients, changing them, and "mothering" them. This is the time when contact is made with the patient.

Drill for Emergencies

1. *The Patient goes Blue.*

(a) *In coma.* Two nurses stand one on each side. The first nurse throws back the bedclothes and thereafter attends to the head end of the patient. The second nurse slips his hands under the patient's hips and gently throws him over on to his side towards the other nurse. The first nurse replaces the bedclothes. Meanwhile the third nurse has called the doctor. Such cyanosis is usually due to tongue swallowing.

(b) *Coming out of coma (regurgitated fluid).* In addition to the foregoing the first nurse grasps the patient around the shoulders and holds him half out of bed rolled over the nurse's knees with his head hanging well down to the floor.

2. *The Patient Becomes Violent.*—The first nurse holds the patient tight against his body ("hugs him"). The second nurse directs the movements of his arms and legs where they cannot do harm. Meanwhile the first nurse must continue soothing and reassuring the patient. During a quiet period the patient is lifted down on to the floor mattress and his own mattress is lifted down beside it to give as large a protected area as possible. We have found that anything approaching rigid restraint makes the patients more violent.

3. *Disturbance of Respiratory Rhythm.*—The doctor must be called immediately. Be prepared to apply artificial respiration if necessary.

4. *The Pulse Falls Below 50 or Rises Above 150.*—The doctor must be called immediately.

5. *The Pulse Falls Below 40 or Rises Above 160.*—The nurse should administer glucose immediately if the nasal tube is in position. Meanwhile the doctor has been summoned.

6. *Other Emergencies.*—If the nurse is worried and the doctor is long in arriving 1 c.cm. of adrenaline can be given. Theoretically this should terminate the coma. (We have not had experience of this.)

7. *Epileptic Fit.*—The nurse should manage this as any ordinary fit. The doctor should be notified. He will terminate the coma.

In practice we have found the following additional points of value. If a patient has a tendency to vomit his glucose solution the addition of an ordinary alkaline powder to the feed will prevent it. If the swallowing reflex is sluggish the nasal tube is sometimes hard to pass. Tap the patient's larynx lightly and the patient will usually swallow. A cigarette tides a difficult patient over his hungry period.

The glucose solution is prepared daily in the ward from commercial crystalline glucose. Six ounces are added to a pint of water. An emergency tray is kept always ready in case a coma should have to be hurriedly terminated. We have ampoules containing 30 c.cm. of 10 per cent. glucose in normal saline solution and the necessary syringes for giving this intravenously. We once terminated a coma by this method: the patient became conscious within two minutes of injecting one ampoule. Adrenaline is also kept on the tray. During the coma we raise the foot of the bed six inches. We use nasal stomach tubes sizes 10 and 12.

Summary

1. Insulin shock treatment is feasible in a rate-aided mental hospital without any special dislocation of the normal hospital service.

2. The essential importance of sound team work is demonstrated, and a method of training nurses for it is given.

3. The results to be expected are mentioned.

4. A typical insulin shock is described.

5. The technique is explained, and the instruction to the nurses is tabulated.

Acknowledgement for permission to carry out this treatment and to publish the results is made to the medical superintendent of the West Ham Mental Hospital, Dr. J. Harvey Cuthbert, and thanks are also due to Dr. J. J. Murphy of the same hospital for his valuable support and help.

CARCINOMA OF THE CERVIX IN INDIA THE FIVE-YEAR END-RESULTS*

BY

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Malignant disease of the uterus is as common in India as it is elsewhere. While studying uterine cancer, first, for three years in Germany, and since then in India, I found it most difficult to follow up these cases. In Germany I found that many patients changed their residences, but it is the custom there to notify the police and the municipal office of the district or ward left as well as of the one entered. Thus there is very little chance of losing sight of a case.

Perhaps the ideal conditions for following up cancer cases are found in Sweden, where the Government has made it obligatory for every patient to report when notified; if she does not do so she has to account for her failure. Heyman of Stockholm is fortunate in having been able to follow up all his cases year by year for the last decade. In Great Britain Victor Bonney's investigation is perhaps the most complete, but in spite of his efforts he could not trace all his cases; he had lost sight of twelve after five years and twenty-three after ten years.

Unfortunately the situation is very different in India. The economic condition of our people renders about half the patients houseless, and there is inefficient civic organization, there being no arrangement for the notification of change of address. Moreover, individual irresponsibility on the part of the patients makes the question of following up extremely difficult. I always try to take three addresses in the case of each patient besides that of the attending doctor, if any. Of the three addresses, one is that of the patient herself, the second one is of her relatives, and the third one of her neighbours. I issue letters periodically to different addresses, but unfortunately the response is meagre. For the follow-up records of my cancer cases I have considered those cases which could not be traced as dead, although we found one or two cases unexpectedly later on to improve the five-year statistical results. I encountered one of my patients of 1926 quite recently; not being able to trace her I had recorded her as dead.

* Read at a clinical meeting of the Calcutta Branch of the British Medical Association.