

## MEDINAL-LUMINAL PROLONGED NARCOSIS.

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DESPITE the modifications introduced at Cardiff (1, 2, 3), somnifaine prolonged narcosis remains a dangerous procedure (4, 5), and we had hitherto thought that the method could only be made perfectly safe by reducing the dose below a level which is therapeutically valuable. Witt and Cheavens (6), followed by Day (7), have, however, used a medinal-luminal mixture with apparent safety and with good results, and we have followed their technique in 60 cases. A mixture containing medinal 5 gr. and luminal 1 gr. in each drachm is used. The first dose is 2 drms., which is repeated 4-hourly till sleep occurs; thereafter 1 drms. is given as required. The usual methods of nursing are adopted (3, 4), and Day claimed that narcosis could be continued for as long as 78 days with a gain in weight of from 5 to 30 lb.

### RESULTS.

#### *Melancholia.*

Our largest group comprised 32 cases of melancholia, and of these 5 were recurrent, 6 menopausal, 3 senile, and 8 of the whole group could be described as agitated, but there were no differences in results that would justify splitting up this group. Ages ranged from 29 to 68 and they were all women except two. Days of treatment varied between 5 and 29, averaging 16, and the average daily dosage was 3·3 drms. Diet was restricted to fluids of good nutritive value, and from 120 to 185 oz. were given to each patient every day; the urine output varied from 14 to 56% of the fluids taken, the average urine excretion being 31%. Eighteen of this group lost weight, 8 were unchanged and only 6 gained weight, and the average loss for the whole group was 3·2 lb.

Fourteen cases showed improvement, which was apparent on regaining consciousness or commenced within one week of the termination of the narcosis and was maintained. The phenomenon of improvement setting in from 3 to 5 days after the cessation of treatment was met with often enough to convince us that the association with the narcosis was not accidental. In 6 further cases there was a transient improvement, and in 11 no change resulted.

The last case of this group died as the result of treatment. These results are rather better than those attained by Parfitt (4) at this hospital, using somnifaine.

#### *Mania.*

The best results were obtained in this group. Of 10 recent admissions 9 women and 1 man, 7 of whom were recurrent, apparent cure was obtained in 7; 2 improved and relapsed and 1 was unchanged, but the 3 failures had 4, 5 and 9 days' treatment, while the 7 successes had 11 to 26 days' treatment and averaged 18 days. The average for the whole group was 14 days; the ages were from 30 to 58 years and averaged 45.3; the average daily dose was 4.3 drms., the average loss of weight nearly 3 lb., and urine measured 31% of the fluid intake.

Three chronic male patients were treated and two showed temporary improvement. One of these, a case with some schizoid features, has had six courses of treatment averaging 18 days each and taking 3 drms of the mixture daily; the first narcosis produced an improvement lasting a few weeks; the second, third and fourth were valueless; the fifth again produced improvement, and the sixth has produced the best effect so far.

The following table shows the results obtained in a mixed group of manic-depressive cases by Day and ourselves using medinal-luminal and by Parfitt using somnifaine.

	Day.	Wilson and Gillman.	Parfitt.
Total number of cases	59	45	22
Cured	24	21	5
Showing some improvement	30	10	8
Unchanged	5	14	9

#### *Schizophrenia and Paraphrenia.*

In 7 cases aged from 17 to 40 years and averaging 26.1 years who received 3.6 drms. daily for an average of 17 days, one of three quiet patients showed a temporary improvement and 2 of 4 excited patients improved, one sufficiently to be discharged, but he relapsed in 3 months. Of 2 senile paranoids aged 65 and 68 one showed a temporary improvement. The urine-fluid-intake ratio was only 27%. These results correspond with those of Day, who obtained improvement lasting some days only in his schizophrenics, and are not so good as those reported by Parfitt using somnifaine.

#### *Anxiety Hysteria.*

Five women whose ages varied from 29 to 48 and averaged 37 years had from 10 to 38 days' treatment, and averaged 3.5 drms. a day for 24 days. They lost an average of 7 lb. in weight, but all showed some slight improvement, which was maintained. The urine-fluid-intake ratio was 43%.

*Epilepsy.*

The last case in this series was an epileptic, subject to periods of prolonged excitement. He was aged 30, and following 8 days of reasonably smooth narcosis without urinary changes, during which he had 28 drm. of the mixture, he developed an acute "barbiturate" pneumonia and died in two days. Post-mortem both lungs were heavily congested and pus was found in the right kidney. It is striking that the only epileptic treated with somnifaine by Parfitt (4) died similarly following 12 c.c. of somnifaine in 3 days. In both cases the patients were apparently in sound health, and although only on a basis of 2 cases, we feel justified in urging great caution when the treatment of epileptics by prolonged narcosis is contemplated.

In most cases of this series we have used insulin as recommended by Ström-Olsen, and have added 10 c.c. of campolon given intramuscularly twice a week, but we are unable to report any striking freedom from complications.

## COMPLICATIONS.

Seven patients ran irregular temperatures without necessitating cessation of treatment, and 4 more developed high temperatures with signs of physical distress, which were not alarming but led to treatment being stopped. In addition to these there were 3 cases of "barbiturate" pneumonia, one of which proved fatal. In 4 cases treatment was abandoned because of a general impression of illness and toxæmia, and in 7 patients treatment was terminated by collapse; 3 of these were pale with a thready pulse and 4 were cyanosed; in all, the temperature was subnormal but only 2 were desperately ill. One died, and the other took several weeks to recover following the development of a bed sore over the sacrum which proved extremely resistant to treatment. One patient had a bradycardia, 30 beats per minute, for 2 days. Dysphagia was observed in 8 patients and tube-feeding was necessary in 3, but only 2 patients were troubled by vomiting in the early stages of treatment.

Generalized morbilliform rashes developed in 4 cases and were treated with calcium ametoxy without the interruption of narcosis, and in each case the rash disappeared in a few days. Retention of urine for 24 hours or longer was fairly frequent, but catheterization was only resorted to on two occasions. Two patients complained of diplopia during the phase of recovery from narcosis.

In only 22 patients were there no urinary changes, the commonest laboratory return being a trace of albumin, some pus-cells and epithelial cells, and this was persistent in 19 cases. Two further cases had occasional pus-cells, 7 had occasional albumin and 10 had albumin regularly; the development of casts in the urine of one of these latter led to the termination of narcosis, but otherwise the urinary findings were not taken as indications for stopping treatment. Nine cases had acetone in the urine for from one to seven times, usually during the early stages of treatment.

## CONCLUSIONS.

- (1) Complications in medinal-luminal narcosis are not so frequent as in somnifaine narcosis, but the treatment presents grave dangers at times.
- (2) The results of treatment are not so dramatic as those obtained by somnifaine, but on the whole are at least as good.
- (3) The results in mania are excellent, in melancholia they are good, but schizophrenics do not respond to this form of therapy.
- (4) In cases of anxiety hysteria showing no response to ordinary treatment initial improvement can be obtained.
- (5) The treatment of epileptic psychoses is contra-indicated.

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## REFERENCES.

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  - (3) HENNELLY.—*Ibid.*, 1936, lxxxii, p. 608.
  - (4) PARFITT.—*Lancet*, 1936, i, p. 424.
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  - (6) WITT and CHEAVENS.—*Texas State Journ. Med.*, 1934, xxx, p. 517.
  - (7) DAY.—*Ibid.*, 1936, xxxii, p. 417.
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