If any of these individuals are at present hospital in-patients or arrive in the surgeries or casualty departments, it would be much appreciated if the hospital concerned could notify us as soon as possible (write, or phone VIGILANT 6611). We would then arrange either to visit the patients directly, or, alternatively, they could be admitted to Banstead Hospital.

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REFERENCES

- ¹ Alderson, D. A., and Henriques, C. Q., *Brit. med. J.*, 1956, 1, 462.
- ² Armitage, G. H., *Lancet*, 1951, 1, 743.
- ³ Asher, R., *ibid.*, 1951, 1, 339.
- ⁴ ———, *Brit. med. J.*, 1955, 2, 1271.
- ⁵ Balmforth, G. V., and Pollock, J. A., *ibid.*, 1955, 2, 1330.
- ⁶ Barker, J. C., and Grygier, T. G., *Lancet*, 1957, 2, 1069.
- ⁷ Bass, B. H., and Selson, M. G., *ibid.*, 1957, 2, 1006.
- ⁸ Bolam, R. J., *ibid.*, 1951, 1, 743.
- ⁹ Chapman, J. S., *J. Amer. med. Ass.*, 1957, 165, 927.
- ¹⁰ Collie, I. F., and Grygier, T. G., *Lancet*, 1954, 2, 1284.
- ¹¹ Cook, P. J., *ibid.*, 1951, 1, 743.
- ¹² Drury, M. I., *J. Irish med. Ass.*, 1952, 30, 141.
- ¹³ Essenhigh, D. M., and Feachey, R. D. G., *Lancet*, 1957, 1, 638.
- ¹⁴ Gatenby, P. B. B., *J. Irish med. Ass.*, 1952, 30, 102.
- ¹⁵ ———, *Brit. med. J.*, 1955, 2, 1207.
- ¹⁶ Gawn, R. A., and Kauffmann, E. A., *ibid.*, 1955, 2, 1068.
- ¹⁷ ———, *ibid.*, 1955, 2, 1329.
- ¹⁸ Grant, A. P., *J. Irish med. Ass.*, 1952, 31, 299.
- ¹⁹ Young, A. G., *Lancet*, 1951, 1, 744.
- ²⁰ Heathfield, K. W. G., *ibid.*, 1957, 1, 533.
- ²¹ Irvine, R. E., *Brit. med. J.*, 1955, 2, 1207.
- ²² Sanderson, P. H., *Lancet*, 1957, 1, 483.
- ²³ Short, I. A., *ibid.*, 1951, 1, 639.
- ²⁴ ———, *Brit. med. J.*, 1955, 2, 1206.
- ²⁵ Staffurth, J. S., *ibid.*, 1955, 2, 1207.
- ²⁶ Wilks, J., *Lancet*, 1951, 1, 475.
- ²⁷ Jones, E. W., *Brit. med. J.*, 1955, 2, 1271.

Acute Barbitone and Bromide Poisoning with Unusual Features

Severe poisoning with barbiturate usually causes some or all of the following: coma, absent reflexes, depressed respiration (usually with a slow rate of breathing, deep and stertorous or shallow, often with cyanosis and sometimes pulmonary oedema), variable pulse rate, frequently low blood pressure, lowering of body temperature, and dehydration if coma has persisted for some time. The clinical findings are very variable, depending on the type of barbiturate swallowed, the dose in relation to size, duration of poisoning in relation to a previous meal, and the age and previous state of health of the patient. The findings detailed in the following case history were unusual enough to cause difficulty.

CASE REPORT

A male schizophrenic aged 44 had complained of cough for many years. Pulmonary tuberculosis and dust disease had been excluded, but he had a mild chronic bronchitis. During February and again in April, 1956, while in a mental hospital, he was found to have a slight tachycardia (70–86 a minute), labile hypertension 120/80 to 160/100 mm. Hg, respiratory rate 24–28 a minute, and a normal x-ray appearance of the chest.

On July 6, 1957, he was put to bed at 11 p.m. after an episode of mental disturbance; at 7 o'clock the next morning he was found unconscious; at 11.30 a.m. his doctor was called and visited him promptly. The patient was then in coma, all reflexes except the conjunctival were absent, the left leg was more flaccid than the right, he was incontinent of urine, the pupils were dilated, the pulse was slow and of fair volume, and he was frothing copiously at the mouth. The doctor wrote: "The whole condition is suggestive of barbiturate poisoning, but I can find no source for this. He has been on a bromide-barbitone sodium mixture, but has not taken excess of this." He was admitted to hospital at 1 p.m., when his condition was found to be essentially unchanged, and in addition it was noted that all reflexes were absent, anaesthesia was complete, the eyes and mouth were dry and foul, the abdomen was silent, the bladder was not palpable, and the skin was dry; axillary temperature was 103° F. (39.4° C.), pulse 86, B.P. 170/110, and respiratory rate 80. Cardiac sounds were remote, and harsh sounds con-

ducted throughout the chest, but there was no pulmonary oedema. The facies was blue-grey in colour.

Much mucus was sucked from the throat and pharynx and oxygen was given by mask. Samples of blood, urine (2 oz. —57 ml.—by catheter), and C.S.F. (clear, under increased pressure) were withdrawn and sent for analysis. As oxygen therapy did little to relieve the cyanosis and the tachypnoea defeated attempts at manual assistance to respiration, it was decided to inject the contents of 1 ampoule (125 mg.) of the soluble sodium salt of bemegride ("megimide sodium") in 5 ml. of saline intravenously. This compound has a dramatic effect in dogs anaesthetized with pentobarbitone sodium and may increase respiratory minute-volume by eight times within one minute of injection, but its effects in man have not so far been reported.

There was an immediate improvement. Coma lessened; a sluggish light reflex appeared in smaller pupils; reaction to firm supraorbital or plantar stimulation returned; he groaned, grimaced, and babbled words after a few minutes; muscle tone improved greatly; and cyanosis lessened. The B.P. was 160/90, pulse 120, and respirations 60. Within 45 minutes these signs of improvement had gone.

Analytical results were as follows. Urine: sp. gr., 1030, acid; albumin-positive; a trace of sugar; no barbiturate, salicylate, or bromide. C.S.F.: clear, no cells, protein 56 mg./100 ml.

In view of the failure to find barbiturate and because of the marked tachypnoea, fever, and hypertension, 1 million units of benzylpenicillin was given, suction repeated, and the patient transferred to the ward for observation. Thereafter his condition deteriorated, and by 8 p.m. he was in deep coma, flaccid, anaesthetic; reflexes were absent. The pulse was 110–65 and respirations 60/90; the chest was full of rales; B.P. was 110/70; he was sweating heavily and had a temperature of 100° F. (37.8° C.). A glucose-saline drip was instituted and bemegride, 0.4 g., and amiphenazole ("daptazole"), 50 mg., were injected in the course of an hour. Reflexes returned within 30 minutes; pulse slowed to 100, but rose after two hours to 120 and fell below 100 only after 48 hours. Blood pressure declined to 90/60, then rose steadily to 120/60 in three hours and 170/110 in two days. The respiratory rate fell to 50 and in three hours to 30; next day it rose to 35, then declined slowly as fever resolved over three days.

After two hours he could sit up with assistance and take fluids by mouth. On July 8 blood examination showed: normal electrolytes and alkali reserve; Hb, 16.6 g./100 ml.; W.B.C., 23,300 (polymorphs 79%); glucose 147 mg./100 ml.; urea, 80 mg./100 ml.; Wassermann and Kahn reactions negative. The first urine specimen was loaded with albumin, had a trace of sugar, and was like pomegranate juice in colour. Unfortunately the pigment was not determined. X-ray films of the chest and E.C.G. were normal. The patient improved steadily on penicillin-streptomycin treatment and was transferred to a mental hospital after five days.

COMMENT

In 354 consecutive cases of barbiturate poisoning observed personally, no patient has had a respiratory rate over 35 a minute, a temperature above 100° F. (37.8° C.), or blood pressure above 140/90 mm. Hg. The abnormal findings and apparent absence of urinary barbiturate or bromide delayed the diagnosis. Bemegride sodium was dramatic in its effect but is hardly diagnostic; bemegride treatment was very effective when used. Blood taken at 2 p.m. on July 7 contained 10 mg. of barbitone per 100 ml. and on July 15 18.75 mEq./l. (150 mg. per 100 ml.) of bromide. He admitted to having taken 5 g. (75 gr.) of barbitone sodium and 10 g. (150 gr.) of sodium bromide at midnight on July 6 in 120 ml. (4 fl. oz.) mixture.

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