A CASE OF ASPIRIN POISONING.

By ASHLEY A. ROBIN, M.B., Ch.B.,

Registrar, Runwell Hospital, Wickford, Essex.

FROM time to time accounts have appeared of recoveries and of deaths following the ingestion of large doses of aspirin. A further case is here reported.

CASE HISTORY.

The patient is a married man, aged 44, who was admitted to hospital for the fourth time on 22.iii.1948, having previously been in Severalls Mental Hospital in June, 1943, from October, 1943 to March, 1947, and from November, 1947 to January, 1948. He suffers from paraphrenia, and shortly before this suicidal attempt was noted as believing that he had the capacity to receive secret information from M.I.5. He had, on previous occasions, spoken of being persecuted over the radio by Whitehall, and had numerous other bizarre delusions. For some years he has expressed the view that he, and other mental patients, should be subjected to euthanasia. On 16.v.1950 he went on leave and stayed with friends. For the first two days of the leave he appeared quite well. On the morning of 18th May, however, he decided to end his life, and during the day he bought twelve bottles of aspirin at three different shops. Eight small bottles contained, according to the shop-keeper, 25 tablets of 5 gr., but according to the patient, who says that he counted them, only 22. The four larger bottles contained about 100 tablets of 5 gr. in each. The number of tablets in each bottle, and in one case the actual sale was confirmed by the local police.

The patient spent the afternoon with his wife. In retrospect she thought that he seemed depressed. He complained to her that he was suffering from abdominal pain and that his complaints were ignored at the hospital or treated as delusions. He had in fact been investigated for this complaint and a barium meal showed a deformed duodenal cap but no active ulceration. At 6.45 p.m. after leaving his wife, the patient crushed the aspirin, and swallowed, he estimates $\frac{7}{8}$ of the total—i.e. about 2,500 gr. aspirin. Knowing that he would be reported missing he then secreted himself in a boat lying on the beach of a nearby coast resort. He noticed a man working on another boat a little way along the beach and then went to sleep.

At 11 p.m. he was awakened by a knocking on the side of the boat. This he took to be the man he had previously seen, now working on the boat in which he was hiding. He remained quiet for about 10 minutes, as he still did not wish to be discovered. The continual tapping, however, became too much for him, and he peered over the side of the boat to find that the tide had come in and that the cause of the noise was in fact the sea around the boat. He was now acutely distressed and realised that he might be beyond help as he was cut off. He became frightened, shouted for help, and vomited—just over four hours after he had taken the aspirin. He was rescued by the police about 150 yards from the shore some 40 minutes later and was eventually taken to Southend General Hospital where he again vomited copiously and where his stomach was washed out at about 1.30 a.m. The washings were strongly positive by the ferric chloride test for salicylates.

The patient was transferred to Runwell Hospital at 11 a.m. the next day—i.e. about 16 hours after taking the aspirin and on admission was hyperpnoeic, cyanosed, and pyrexial (101°. 114.36). He vomited a coffee grounds fluid and was unable to retain fluids by mouth. He admitted to some pain in the lumbar region but only on being pressed as to the existence of any discomfort. He was slightly deaf but denied tinnitus. Mentally he was unimpaired and gave a full account of his actions. His mood was, however, one of euphoria. Though he appeared acutely

https://doi.org/10.1192/bjp.97.406.214 Published online by Cambridge University Press

uncomfortable he said that he felt very well and that he thought that the aspirin had done him a lot of good.

During the following 12 hours, 2 pints 5 per cent. dextrose and 1 pint N-saline were given intravenously, and a further 2 pints 5 per cent. dextrose with 2 hourly doses of 4 grams sodium bicarbonate were administered rectally. After 24 hours fluids were retained by mouth. 20 c.c. cerebrospinal fluid were removed under pressure and the patient claimed subjective relief from the procedure. His euphoria has, however, been commented upon. Fluids were forced for two days and on the third day he was able to retain a light diet. A penicillin screen was provided for 5 days. The temperature settled in 24 hours and none of the subsequent rises in the following 16 days was greater than 99°.

Laboratory investigations showed occult blood positive 4 days after admission but negative on subsequent testing. No salicylates were detected in the urine after 3 days. Urea concentration and thymol turbidity tests were within normal limits on the 5th and 14th day respectively. BSR remained 9 mm.60 minutes on the 11th day.

Some two months after the incident the patient remains cheerful and says that his failure to commit suicide must be because this is not intended by God. He has numerous ideas as to what he will do in the future but changes each plan before he has done very much about it. He draws what he says are humorous cartoons and writes pseudo-philosophical material which he hopes to publish. He is resentful of any discussion of his previously expressed ideas of euthanasia and says that this simply replaces them in his mind. He admits that he is able to pick up messages from other people's minds but would only speak of this in private as he is aware that others are sceptical of his abilities. He does not expect the writer to believe him—indeed he remarked that on a previous escape he had told Scotland Yard about it and had been laughed at. He explains this phenomenon as analagous to religious experience and says that perhaps one day the writer will " experience " and then " believe." He complains of the environment of the Mental Hospital which he regards as responsible for a lot of swearing that he " picks up." He calls this phenomenon " ego conflict " and says that it is the attempt of one person to impose himself on another. He says that he no longer has any abdominal pain.

Discussion.

The clinical features of this case are broadly as described by Hopkins (1945) except that this patient showed a rise in temperature as previously reported by Charters (1944), Neale (1936) and Dyke (1935) and since reported by Krasnoff and Bernstein (1947). This patient also continued to show some evening rises during the subsequent 16 days. Fulton (1949) notes that the focal centre of " the complex integration which controls body temperature is located in the hypothalamus." The therapeutic antipyretic action of aspirin and the subnormal temperatures in some cases of poisoning are said by Goodman and Gilman (1941) to be due to stimulation of the anterior hypothalamic nuclei through which diaphoresis and peripheral vasomotor activity are invoked. Pyrexia in toxic doses of aspirin is not commented upon, but may be due either to stimulation of the posterior hypothalamic nuclei (and Masserman (1937) has shown that both anterior and posterior nuclei are affected by such agents) or by inactivation of the anterior nuclei. Fulton notes that experimental lesions in the latter region are followed by hyperthermia. Abolition of function often follows excitation with increased intensity of the excitant in the CNS.

A second difference in this case was the presence of euphoria. Mental changes mentioned by Hopkins are drowsiness, hallucinations and delusions. Goodman and Gilman mention the occurrence of the symptoms of " cerebral

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excitation." These are known as " salicylic jag " and are said to be " restlessness, incoherent speech, excitement and occasionally mania, delirium and hallucinations." Similar states it should be noted may accompany hyperthermia in lesions of the anterior hypothalamus and the euphoric mood in this case may be presumptive evidence of localization of the effect of the drug to the anterior hypothalamic nuclei. It is also noteworthy that the visceral afferents traverse the anterior hypothalamus and then project through the thalamus to the orbito-frontal cortex. The division of this projection is the rationale for the performance of frontal lobotomy in intractable visceral pain. It will be remembered that our patient did not complain of abdominal pain after his suicidal attempt.

The presence of cyanosis is commented upon by Krasnoff and Bernstein. Gross pathological changes in aspirin poisoning are said to occur in the brain, kidney and liver. Function tests and clinical examination in this and other cases indicate a return to previous functional levels.

The largest dose of aspirin previously reported in a case of poisoning was 1,500 gr. by Evans (1938).

Summary.

1. A case of poisoning by ingestion of 2,500 gr. of aspirin with subsequent survival is reported.

2. It is suggested that the symptomatology, including mood change, may be accounted for by inactivation of the anterior hypothalamic nucleus.

Thanks are due to Southend General Hospital for lending the patient's records; to Southend Police for the detailed reports referred to, and to Dr. S. L. Last, Consulting Psychiatrist, Runwell Hospital, for permission to publish this report.

References.

Charters, A. D. (1944), *Brit. med. J.*, i, 10.
Dyke, S. C. (1935), *Lancet*, ii, 613
Evans, G. S. W. (1938), *Brit. med. J.*, ii, 386.
Fulton, S. F. (1949), *Physiology of N.S.* Oxford Med. Pub.
Goodman, L., and Gilman, A. (1941), *Pharmacological Basis of Therapeutics.* New York: McMillan Co.
Hopkins, (1945) *Lancet*, i, 145.
Krasnoff and Bernstein (1947), *J.A.M.A.*, **135**, 11, 712.
Masserman (1937), *Arch. Neurol. Psychiat.*, **67**, 625.

https://doi.org/10.1192/bjp.97.406.214 Published online by Cambridge University Press