ASTHMA AND PSYCHOSIS.*

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[Received 1 January, 1953.]

Scattered throughout the literature on the psychiatric aspects of asthma are reports of cases where the psychiatric disturbance was severe enough to be described as "psychotic" (Reichmann, 1922; Hansen, 1929; St. Saxl, 1933; Oberndorf, 1935). The term "psychotic" was used in the sense that the psychiatric diagnosis was either that of manic-depressive psychosis, schizophrenia, or paranoid psychosis. It has been postulated, moreover, that the co-existence of a psychosis and attacks of asthma was no chance relationship, and that there was an intimate link between the psychosis and the somatic disturbance. This relationship, it has been said, is of considerable theoretical significance. Appel and Rosen (1950), for example, consider that "there is a reciprocal relationship between the so-called physical manifestations of psychosomatic illness and the psychological manifestations of psychiatric illness." This concept is also held to apply in disorders other than asthma—in ulcerative colitis, rheumatoid arthritis, and in certain skin disorders. The treatment of such disorders psycho-therapeutically is said to result at times in an alleviation of the physical disorder, but the concomitant development of a psychotic reaction (Appel and Rosen, 1950; Lindemann, 1950). During the past three years an investigation of patients suffering from asthmatic attacks has been in progress, and the opportunity has arisen to examine these points on a fairly large case material. The present paper reports an attempt to investigate scientifically some aspects of the relationship between asthma and psychosis.

Clinical Assessments and Material.

Twenty-eight psychotic mental patients currently suffering from exacerbations and remissions of typical attacks of bronchial asthma were examined. They were drawn from two principal sources. The first group consisted of the psychotic residuum of 56 patients referred to one of us (D. L.) as a psychiatrist interested in the problem of asthma. Of these 56, 12 were found on psychiatric examination to be suffering from either affective disorder, or schizophrenia in addition to their asthma, the remainder being classified as either neurotic or

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https://doi.org/10.1192/bjp.99.416.489 Published online by Cambridge University Press

psychopathic. All 12 patients in this first psychotic asthma group were studied medically and radiologically, and the results of skin testing were noted. A preliminary psychiatric interview lasting one hour was the prelude to an intensive psychopathological investigation, using a standardized technique. This was the method of simple goal-directed psychotherapy involving minimal activity on the part of the therapist described by Finesinger (1948). Each interview lasted 50 minutes and was recorded in full with the productions of patient and doctor, the changes in behaviour and respiration all being noted. The interviews were spaced either daily, or weekly, depending on whether in- or out-patient investigation was indicated. The number of interviews ranged from 8–120, and was largely determined by the course of the asthma. In addition, all patients have been continuously followed since their discharge from treatment. From this wealth of recorded data some information bearing on the topic under discussion is available.

The second group was drawn from that section of 2,400 patients of Banstead Mental Hospital* who were not only psychotic but also were suffering from bronchial asthmatic attacks. A preliminary survey of the hospital population of Banstead† revealed that 16 of the 2,400 patients there were both asthmatic and psychotic. These 16 patients were investigated more summarily than those of the first group. Medical and psychiatric examinations were carried out and their past histories analysed from the case records. The chest skiagrams of those who had been X-rayed were studied.

Physiological Assessment.

The oxygen saturation of the arterial blood of both groups of psychiatric patients was measured by the reduction time technique of spectroscopic oximetry (Lovett Doust, 1951; 1952*a*), a non-traumatic method suitable for repeated use with readily disturbed psychiatric patients. A number of estimations was always taken on each patient until a stable baseline was achieved, and the response to breath-holding stress was then investigated to permit of the assessment of the "efficiency score" (Ray and others, 1946; Lovett Doust, 1952*a*). Details of the value of these measurements and of the results obtained by such means in a group of non-psychotic asthmatics have been reported elsewhere (Lovett Doust and Leigh, 1952).

Results.

In all, 28 patients concomitantly suffering from both a major psychosis and from asthmatic attacks were studied. In 16 the diagnosis was that of an affective disorder (manic-depressive reaction); 11 were considered to be examples of schizophrenic illness; the remaining patient suffered from a senile psychosis.

The diagnosis of the asthmatic attack, by which is meant a dyspnoeic state, characterized by wheezing and the prolongation of the expiratory phase of respiration, was not difficult. The conventional classification into intrinsic

* Examined by the courtesy of Dr. Macdonald, Medical Superintendent of Banstead Hospital.

† This survey was very kindly undertaken for us by Dr. A. G. Hucker.

https://doi.org/10.1192/bjp.99.416.489 Published online by Cambridge University Press

and extrinsic asthma does not bear close examination. It has been found more convenient to regard the asthmatic attack as a result of stimuli, arising from either within or without, which disturb the equilibrium of the organism; endocrine, metabolic, nervous, infective and allergic factors may all be involved. Many asthmatic attacks appear to result from the interaction of several of these factors, and so a comprehensive classification becomes fraught with difficulty. However, in the group reported here, 26 of the 28 gave a history of a chest infection preceding the onset of the asthmatic attacks, while only 10 had shown allergic manifestations. Tables I and II give the data regarding various clinical factors of importance in this group of 15 women and 13 men.

TABLE I.—*Ages of Onset of Somatic and Psychiatric Disturbances in a Group of 28 Psychotics with Bronchial Asthma.*

	Age (years).			
	<20.	20–40.	40–60.	>60.
At time of examination	2	7	14	5
At onset of asthma	13	7	7	1
At onset of psychosis	6	11	10	1

TABLE II.—*Distribution of 28 Psychotic Asthmatic Patients in Terms of the Duration of Each Component of Their Disorder.*

	Duration (years).		
	0–5.	5–10.	10.
Asthma	5	3	20
Psychosis	16	6	6

All patients in temporary remission at the time of examination showed signs of chest disorder—either chronic bronchitis, emphysema, or bronchiectasis. Fifteen of the 28 patients from whom information was reliable gave a family history of neurosis or psychosis in a near relative. These findings parallel those in a group of 40 non-psychotic asthmatics investigated by a similar technique (Lovett Doust and Leigh, 1952).

It is perhaps needless to add that cases of cardiac or renal asthma or of other rarer conditions such as periarteritis nodosa have been excluded from consideration in this series.

The personalities of these patients presented no deviation from those expected to occur with the type of psychosis from which they were suffering. No change in mental state, apart from some apprehension and anxiety, was observed during the onset, duration or cessation of an asthmatic attack. There was no evidence that any one particular emotional constellation was associated with the attacks of asthma, in fact, as has been previously stated, a variety of different stressful stimuli were found to be capable of evoking an attack (Lovett Doust and Leigh, 1952).

Attention was particularly directed towards the temporal relationships of the psychosis and the asthma. As will be seen from Table II, in about two-thirds of the group the asthma had been present for over ten years, whereas

https://doi.org/10.1192/bjp.99.416.489 Published online by Cambridge University Press

their psychosis had been present for less than five years (in 12 patients for less than one year). In 2 cases which are recorded here in detail, there appeared to be evidence for an alternation between the psychosis and the asthma.

Oximetric Results.

Consideration of Table III indicates that the resting arterial oxygen saturation values found in patients with bronchial asthma complicating a manic-depressive type of psychosis lay within the normal critical range, while those

TABLE III.—*Distribution of Results in Different Psychoses of Oximetric "Reduction Time" (R.T.) Estimation of Arterial Blood Oxygen Saturation. All Patients Suffering from Bronchial Asthma.*

Type of psychosis.	Affective disorder (manic-depressive).	Schizophrenia.		Senile paranoid psychosis.
		Constitutional type.	Paranoid type.	
Number of cases	16	3	8	1
Sex: Male	7	2	2	0
Female	9	1	6	1
Age (years):				
Mean	39·88	39·00	53·00	72
Range	19–57	17–62	36–68	—
Resting R.T. (secs.) ·				
Mean	32·25	17·33	20·75	24
s	6·165	3·416	4·146	—
R.T. "efficiency scores":				
Mean	+14	+11	+25	−8
s	12·867	11·444	12·649	—
Resting equiv. art. O_2 Satn. (per cent.):				
Mean	94·28	89·80	90·83	91·8
s	1·511	1·020	0·799	—

Note the essential normality of blood oxygen levels in the manic-depressive group as contrasted with the low values found in schizophrenia. The small standard deviations (s) of the resting oximetric values suggests a new physiological differentiation of affective from schizophrenic manifestations of psychosis.

in schizophrenic asthmatic patients were pathologically low. The extent of the calculated standard deviations of two principal sets of results suggests a true differentiation between these psychiatric disorders, with asthma as a variable common to both. The findings in terms of blood—oxygen levels agree well with the norms already established for the affective disorders and schizophrenias in patients without asthma, when examined by the same spectroscopic oximetric method of investigation (Lovett Doust, 1952*a*). These norms suggested that the critical range for functional normality lay between 92·1 and 100, with a mean of 97 per cent. equivalent arterial oxygen saturation in a group of 112 healthy subjects of adult age, and it was found that no distinction in resting blood oxygen levels could be drawn between this healthy group and a group of 22 psychiatric patients suffering from affective disorders. Comparison

https://doi.org/10.1192/bjp.99.416.489 Published online by Cambridge University Press

with a schizophrenic population, however, showed a statistically significant difference between the healthy controls and the anoxaemia found to be characteristic for this type of psychosis.

In agreement, therefore, with the oximetric findings in non-psychotic patients with asthma (Lovett Doust and Leigh, 1952) it may be said that bronchial asthma does not affect the resting oximetric levels of psychotic mental patients to a degree which would differentiate them from patients with similar psychoses without such intercurrent disease.

The estimates of reactivity to stress, of which the R.T. " efficiency score " (Ray and others, 1946) is an index, are also given for the psychotic asthma patients in Table III. The mean scores occur in the expected directions, those for manic-depressive patients being practically identical both for non-asthmatic controls and non-asthmatic patients with affective disorders (Lovett Doust, 1952*a*). The lower scores associated with constitutional schizophrenia and the much higher scores found in the paranoid schizophrenics are equally in accordance with expectation, the latter confirming the hyper-lability of response characteristic for this type of patient.

Case 1.

Miss R. L—, aged 45, was seen at her home on 1.ii.50. She had suffered from asthma for 30 years, and since May, 1948, had been receiving psychotherapy elsewhere twice weekly on this account. Eight months after the start of therapy, i.e., in February, 1949, she developed systematized delusions that a gang of men, Jews and Chinamen, were following her, all in league with her psychiatrist. Their aim was to entice her into the white slave trade, and to make a prostitute of her. She also believed that her psychiatrist had injected something into her genitals, under cover of darkness, which caused her to experience peculiar sensations in her abdomen. One day she imagined he said to her, " Now you know what it's like to be married," and " Do you love me ? " She visited the local police station to complain about the gang of white slavers, disguising herself in order to give the gang the slip. The patient then became so disturbed that she told her story to her relatives, who immediately took steps to have her referred to the Maudsley Hospital. Just prior to the domiciliary visit she had threatened suicide—and is in fact said to have swallowed some sleeping tablets. The delusional illness had existed some twelve months prior to the present psychiatrist's visit. Her asthma had improved under the psychotherapy and for six months prior to admission she had been free from attacks. However, on closer investigation it appeared that it had been not unusual in the past for her to have had periods of freedom from attacks lasting from three to six months at a time.

Family history.—Father, 68 ; a thriftless gambler and drunkard of unpredictable mood. Mother, 68 ; embittered, over-anxious and nervous ; unsympathetic to the patient. The patient is the second eldest of seven siblings, four of whom show evidence of neurotic instability. The maternal grandfather was an alcoholic.

Past history.—Born, Kennington, 1906. Afraid of the dark, nail-biter, over-anxious and fearful ; always felt people had a " down on her." School, 5–14. Disliked games, always shy and withdrawn. An isolated child—no close friends. Occupations : 2½ years children's nurse ; pattern cutter for 20 years ; latterly a clerk for 4 years.

Sex.—Menarche 15 ; 6–7/21. Sexual information minimal until psychotherapy began. Masturbation since this time.

Previous personality.—Suspicious and ready to think the worst of people ; easily irritable, moody and over-anxious ; often depressed and pessimistic, worrying about her health ; suspects all men of " evil intentions."

Previous medical history.—Measles and bronchitis as a child. Age 14, onset of asthmatic attacks. Skin reactions negative ; no history of allergy.

Physical status.—Obese woman. Blood-pressure 195/110. Some signs of

https://doi.org/10.1192/bjp.99.416.489 Published online by Cambridge University Press

emphysema and bronchitis. Skin tests negative. X-ray chest: both lungs show poor air entry and there are left-sided pleuro-phrenic adhesions.

Mental status.—Depressed and agitated, tearful. Paranoid delusions as described previously; no hallucinations. Memory intact. No insight; judgment poor.

Course.—During her stay in hospital she continued unchanged until given 12 E.C.T. which relieved her depression and diminished the intensity and force of the delusions. She was discharged home on 9.vi.50, and has been followed as an out-patient to date. Her attacks of asthma persist, with varying frequency, and her paranoid ideas are still present.

Comment.—A 45-year-old woman with a 30-year history of asthmatic attacks and a markedly paranoid personality who developed, at the age of 44, a paranoid reaction with depressive features whilst undergoing psychotherapy. At first glance it appeared that the attacks of asthma were diminished in frequency during the latter course of the psychosis. On longer acquaintance it was clear that this was not so, and that there had been previous periods of freedom from asthma for similar periods or longer. The psychotic symptoms persist at the present time together with the asthmatic attacks. E.C.T. was given with no untoward result, and resulted in an alleviation of the depressive symptomatology.

Case 2.

Mr. P. L. R—, aged 18, an art student, came for consultation on 22.i.52. complaining of nocturnal enuresis, attacks of asthma and fits of depression. The enuresis had persisted since childhood, and he has rarely had a dry bed for longer than a week at a time. His attacks of asthma date from the age of six when his brother was born. The attacks are mainly nocturnal he wakes up feeling frightened and the dyspnoea begins almost immediately. He never gets an attack while on holiday, and they are less frequent when he is away from home. Periods of freedom from attacks alternate with recurrent bouts of several attacks. After an attack he feels very depressed, but moods of depression may seize him at any time, particularly when he is at home. During the course of six psychotherapeutic interviews he made several contradictory statements regarding the relationship between the depressive moods and the asthmatic attacks, at one time saying he got no attacks when in a depressed mood, at another saying that the asthma was associated with a depressive mood.

Family history.—Father, 50, alive and well; Italian extraction; irritable and a worrier. Mother, 40, alive and well; Welsh, worries readily; depressive breakdown age 36 lasting four weeks; sensitive and highly strung; eczema of the hands. One brother aged 12. Maternal grandmother, bronchial asthma. No overt nervous or mental disorder in family.

Past history.—Born 1934; normal birth; forward child but nervous and sensitive; bed-wetter. School, 5–15; absent from school 8–11 with asthma. Age 16, art school—commercial art.

Previous personality.—Sociable, enjoys walking, fishing and astronomy. Hides his emotions, sensitive and reserved until he is sure of people. Depressive mood swings.

Previous medical history.—Asthma since 6. Patent i.v. septum. Hay fever since 14. Eczema dorsal surfaces hands, 16. Occasional stammer since childhood.

On examination.—He was of athletic physique and of average intelligence (I.Q. 113). Chest somewhat emphysematous: expiratory rhonchi right lower lobe. X-ray chest normal. Skin tests negative. Immature personality, with hysterical features.

Course.—A course of investigative psychotherapy was offered to him as an out-patient. He attended irregularly and avoided a discussion of emotionally charged problems, either by cancelling the next appointment or by denial. His asthma, however, improved during the period of his attendance at hospital and no depressive mood swings were noted.

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Comment.—A boy with long-standing asthmatic attacks and nocturnal enuresis who developed periods of depression. Although at first sight there appeared to show an alternation between depression and asthma, on more prolonged acquaintance this was found not to be the case. The history given by his mother confirmed these later findings.

In this case therefore the substitution of an asthmatic attack or a psychotic reaction is open to doubt, though the frequency with which depressive symptoms are encountered in the life histories of asthmatics and their relatives is notable. In the group of 40 patients alluded to previously (Lovett Doust and Leigh, 1952) 90 per cent. suffered from depressive mood swings of marked degree; moreover their predominant affect was one of depression. In the present group of psychotic asthmatics depression again outnumbers other modalities of psychosis, but the proportion (60 per cent.) is not so high. Perhaps the rage component, which was found to represent the second most common emotional manifestation of the non-psychotic group, finds expression in the psychotic group in the schizophrenic population with asthma. All that can be said with certainty is that depressive symptoms are very common amongst asthmatics, that a depressive psychosis is seen in approximately 60 per cent. of the cases recorded here, and that no clear relationship is evident between the asthmatic attack and the depressive mood.

Discussion.

Reichmann (1922), Hansen (1929), Saxl (1933) and Oberndorf (1935) have all postulated a direct relationship between asthma and manic-depressive psychosis. A tradition has arisen amongst psychoanalytic writers that this is in fact the case, and is being perpetuated (Appel and Rosen, 1950). However, studies of mental hospital populations have not confirmed this opinion. In a fragmentary and brief communication MacInnis (1936) reported that she had discovered only 15 patients with allergic manifestations in a group of 7,000 psychiatric patients. All were cases of asthma, and three of the five were said to have shown an improvement in the allergic symptoms whilst suffering from mental illness with a return of these symptoms on " approach to mental balance." Leavitt (1943) in a more careful study of the patients in five large mental hospitals, numbering a total of 11,647 patients, found bronchial asthma to be a relatively rare disease in that only 10 cases were discovered in this very large case material. At a conservative estimate, about 2 per cent. of the general population of the United States suffer from asthma, as contrasting with the figure for the psychiatric group of ·08 per cent. He found that the psychosis was of three types—manic-depressive, dementia praecox and " the paranoia and paranoid condition." No evidence was found that the asthmatic attacks had diminished in frequency or severity following the onset of the psychosis, or that any dynamic relationship existed between psychosis and asthma. Confirmation from British sources is also available for these American figures. When the incidence of asthma in the past medical history of a British group of healthy control subjects is compared with that of groups of psychiatric patients (Lovett Doust, 1952*b*), it is found that the control incidence of 1·7 per

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cent. does not differ significantly from the psychotic group incidence of 2·7 per cent.

Physiologically, as has been seen, no difference is evident in the oxygen saturation of the arterial blood when this is sampled in asthmatic psychotics and compared with that sampled by similar methods in psychotics unaffected by concurrent asthma. The saturation levels found are apparently those co-existing with and attributable to the psychiatric manifestations alone.

From the material presented here it appears therefore that no close relationship exists between psychosis and asthma. A relatively common disorder such as asthma will often exist coincidentally with psychotic illness, for psychotic illness is also of relatively common occurrence. The postulated dynamic inter-relationship does not appear to be verified.

Summary.

(1) A clinical, radiological, psychiatric and physiological study has been made on 28 patients concurrently presenting with bronchial asthma and a psychotic illness.

(2) Sixteen were classified as suffering from an affective disorder (manic-depression), 11 from schizophrenia and 1 from a senile paranoid psychosis.

(3) The incidence of asthma was 0·64 per cent. in a mental hospital population, as contrasted with a 1·5–2·0 per cent. incidence in the general population at risk outside it.

(4) No significant deviation in the oxygen saturation of the arterial blood of the psychotic patient with asthma was found apart from that characteristic of the particular type of mental disorder from which he suffered.

(5) No intimate relationship was found to exist between the psychosis and the asthmatic attack.

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