an initial injection of a dose which is known to cause no unpleasant symptoms, 1 minim is injected every 15, 30, or 60 seconds, according to the patient's reaction, the rate being adjusted so as to cause no unpleasant symptoms and no acceleration of the pulse. The injections are continued, if necessary, even for half an hour or more until relief occurs.

Conclusion

It may perhaps be thought that I have been too pessimistic about the treatment of asthma. But though I am no believer in "asthma cures," and though I regard most of the popular treatment to-day, like that of ten, twenty, and thirty years ago, as nothing more than gross suggestion, yet I know that every asthmatic can derive much benefit from good advice. He can be taught a way of life and, among other things, how to avoid the exciting causes of his particular brand of asthma, how to control attacks which he is unable to prevent, and above all how to be happy in spite of the bad luck of having been born with the asthma diathesis.

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PSYCHOLOGICAL FACTORS IN ASTHMA*

BY

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For some years, and especially at Guy's Hospital between 1933 and 1937, it was my privilege to study in considerable detail a series of children suffering from asthma. Many of these cases have presented in addition other manifestations of what has been termed the asthma-eczema prurigo complex. I have not been able to satisfy myself that any significant distinction could be made between children suffering from asthma alone and those showing skin symptoms; but to avoid any misapprehension I would like to make it clear that my cases included a rather high proportion of sufferers from eczema prurigo—many of them, indeed, came originally from the skin department.

Upon the basis of my work I wish to make certain observations concerning the causation and treatment of asthma. It has been a common experience of mine to find that in a case in which psychological factors were obviously prominent all physical measures had been exhausted before the patient was handed over to the psychiatrist as a last resort. No psychiatrist who had any experience of asthma would claim that physical treatment should be laid aside in favour of psychological treatment. He would, however, in every case feel strongly that psychological treatment should supplement physical treatment at the time when the latter treatment was being given and not as an afterthought. In the great majority of cases the psychological treatment ought not to be given by the psychiatrist at all, but by the physician in charge of the case, and should consist of an assessment of the total situation in which the illness is occurring, having regard to certain principles which I propose to lay down, followed by an attempt to bring correction to bear on those points where it is needed. In a minority of cases technical psychotherapy is required, and should be given along with the physical treatment.

Influence of the Parental Attitude

I will deal first with the psychological factors in the causation of asthma. There is in this disease among children one observation which we must all have made, and which stands out clearly in case after case—namely, that there is an unusual quality in the relations between the child and one or both of his parents. I shall here quote from observations of my own made in 1934 upon one of the earlier cases I was able to study intensively.

The patient, a boy aged 7, was referred to me because he suffered from the fully developed asthma-eczema prurigo

* A paper read on Nov. 27, 1942, at a meeting of the Section for the Study of Disease in Children, Royal Society of Medicine.

complex. My notes contain the following description: "The child came into the out-patient department clinging to his mother and afraid to leave her side. He was pale and thin, with bright eyes and an anxious countenance. During the course of the interview he wheezed continually and scratched himself surreptitiously. When now and again his mother observed him in this latter practice, she appeared greatly distressed and stopped him momentarily. After numerous fruitless attempts to make him leave off she broke down and wept in a hopeless fashion. There was an air of tension in all her dealings with him, as if she was expecting that at any moment something unforeseen but altogether terrifying might happen to him. The child reflected perfectly the maternal over-anxiety. He described his symptoms in an adult manner, speaking in terms of irritation of his skin and a tightness in his chest."

It is merely necessary for me to add that he was an only son of good and conscientious parents, who regarded him as better than the other children in the neighbourhood, with whom he was not allowed to play.

This case must be typical of hundreds, and one's first reaction is to blame the mother for her over-protection and over-anxiety, and to demand that the child be given greater freedom and be allowed to play with other children. The results of such action often seem to justify the belief that parental over-anxiety is the chief psychological factor in the production of symptoms. In this particular case the line of treatment I have described was followed, in conjunction, of course, with such physical treatment as was deemed necessary. The result was remarkable: the timid over-anxious child became bold and aggressive; his asthma and his skin condition both died away.

Such a formulation as this, however, necessarily leaves one dissatisfied. We know that not every over-protected child develops asthma. Is the special parental attitude in these cases, then, of no particular significance—no more, in fact, than one would expect to observe in any sickly child? Or is there, on the contrary, some fundamental connecting link between the personality of the asthmatic child and the anxiety of his parents? These are questions to which I believe I can give a definite answer which also goes a long way towards correlating the psychological side of the asthma problem with the various physical facts known about it. For the sake of clarity I shall give my answer and then proceed to adduce the facts upon which it is based.

The Asthmatic Personality

In my experience the asthmatic child tends to be of a special personality type characterized in its purest form by the following features: (1) he has an intelligence much above the average; (2) he is irritable and aggressive, quick to respond; (3) he is over-anxious, insecure, un-selfconfident. As a result of his insecurity he often appears at first sight repressed and submissive, but even then there is generally an air of subdued tension about him, and, given an opportunity for freer and more confident self-expression, he becomes aggressive and domineering. He is, in fact, the type of child who makes more demands upon his parents, particularly his mother, than almost any other. He is an intelligent individual who twists her round his finger, aggressive enough to get his own way and anxious enough to demand her continual attention. Again and again I have seen children who subsequently developed asthma showing in their earlier years all these characteristics and developing with their distracted parents a relation exactly like that seen in the case of the full-blown asthmatic. To fulfil their own personality needs they both dominate and demand protection from their parents. The fulfilment of these exaggerated needs, however, leads them, as we all know, ultimately into a state of frustration which they cannot either tolerate or get away from; thus the typical relationship development—aided, of course, in many cases by maternal over-anxiety.

Now for the facts upon which I base my assertions concerning the asthmatic personality.

Intelligence.—I have records of the measurement of intelligence by trained psychologists of more than 50 of these children who attended the department of psychological medicine at Guy's Hospital. The average intelligence quotient was 108.8, as contrasted with an average of 90 for a comparable sample of the population attending the same department suffering from other conditions. This very great discrepancy is of course statistically significant and indicates a marked intellectual

superiority of the asthmatic children over the general population. I do not assert that every asthmatic child is a genius, but the tendency towards high intelligence is very important. (I may add that I have never met with asthma in a mentally defective child. Others may have had this experience.)

Other Personality Features.—Facts concerning personality apart from intelligence are very much harder to quote or put forward convincingly. I used two methods with a group of 30 of these children. First, I wrote down in full the description given by the parents in response to the question "What type of child is this?" Secondly, I arranged for an independent trained observer to watch a series of children, including these asthmatics, in a playroom and to record her impressions. The results were as follows: 23 out of 30 patients were described by parents as nervous; 22 as restless, active, excitable; 19 as irritable, aggressive, domineering; 21 as over-anxious, un-selfconfident, afraid. From a corresponding group of children referred to the department of psychological medicine for neurotic difficulties or behaviour disorders it was found that 6 were described as restless and excitable, 4 as aggressive and domineering, and 6 as over-anxious and afraid. These observations were fully confirmed by more detailed studies in children's play, which it would be inappropriate to quote here at length.

As already stated, these same personality features were so often observed by reliable witnesses before the development of the asthma that I am not prepared to believe them secondary to that condition. Indeed, the intelligence quotient stands out as a fact which cannot be explained away in any such fashion.

What is the Meaning of this Personality Type?

I believe this question has a simple answer. On the physical side one of the fundamental facts concerning the asthma-eczema prurigo subject is his abnormal sensitiveness and irritability. His skin, his mucous membranes, his smooth muscle, are all apt to react violently and excessively. I consider that his personality is nothing more than a psychological expression of those same traits. He is quick to react and highly irritable, and it is interesting that the word "irritable" should be used alike of a state of the mind and a state of the skin. He is literally more highly strung than his more, or possibly less, fortunate brethren.

The facts which the psychiatrist observes are corollaries of the facts which the physician studies. They are, to paraphrase Sherrington, two ways of one mind and body, and until we are prepared to accept them as such and to treat them simultaneously we shall not be doing all that is possible for the alleviation of the condition.

Relation between Psychological Difficulties and Asthma

Finally, a few observations concerning the relation between psychological difficulties which I have indicated and the actual phenomenon of an asthma attack. There are certain broad ways in which psychological conflict may be converted into physical symptoms:

1. The symptom may be symbolic of the nature of the conflict, as when, for example, a feeling of choking follows thoughts of drowning.
2. The symptom may be a sign but not a symbol of the nature of the conflict. This distinction, which is perhaps more familiar to philosophers than to physicians, is here very important. For example, palpitation and sweating may be a sign of anxiety; they are not, however, under most circumstances symbolic of the nature of the anxiety.
3. The symptom may be the result of a conditioned reflex.
4. The symptom may be teleologically determined—i.e., as a means of avoiding a difficulty or gaining an end.

I suppose that all these relations may exist in the case of asthma. Trousseau gave us a classic example of the conditioned reflex. Psycho-analytical literature affords us examples of the symbolic asthma attack—for instance, when the asthma attack is traced to an early repressed fear of suffocation. Such examples have, I fear, not always been very convincing. The teleological factor may play a part—some asthmatics certainly seem able to turn on an attack at a convenient moment—but it can seldom be of primary importance. In both these relations,

the symbolic and the teleological, it is of course important to distinguish between true asthma and hysterical hyperpnoea. I doubt whether this distinction has always been drawn with sufficient care.

In the vast majority of cases the asthma attack is, I am sure, a sign of the conflict, its general resultant, in the same way that palpitations are the general result of fear. The important factor that in nearly every case appears to be the connecting link between the psychological conflict and the physical symptom is tension. From the psychological point of view the asthmatic stands tension very badly. When pent up, thwarted, or frustrated he develops asthma upon the slightest provocation. When free and relaxed he is able to stand far more harmful stimuli without developing an attack.

In describing the reaction between the asthmatic child and his parents I mentioned that he secured his immediate needs (i.e., domination of his parents and their constant attention) at the expense of his ultimate needs—that is, freedom of self-expression. The situation which he helps his parents to create is one in which tension is specially engendered. Of course parental difficulties are not the only problems of the asthmatic which create tension. In adults especially, failure of plans, quarrels, and frustrations of all kinds may give rise to the attack. One of the worst offenders is the asthma itself, which interferes with the self-expression of the sufferer and so creates a vicious circle in which the more severe the asthma the greater the frustration. This seems to be the reason why so many patients have found that it was necessary for them to continue their normal lives at all costs, regardless of asthma attacks, otherwise they became much worse. With increased tension comes also increased anxiety, and therefore increased feeling of insecurity. The improvement that follows some line of physical treatment confidently adopted may often be attributed to the feeling of confidence which it produces.

The psychological factors I have described are capable by themselves of producing an attack. Often, however, they provide a background, augmenting and reinforcing the more obvious physical features. Trousseau gives an example of this when he quotes his own experience to the effect that the combination of stable dust and rage at a cheating coachman produced one of the worst asthma attacks of his lifetime. There are more subtle examples too. I have on at least three occasions observed children who were definitely sensitized to one or other of the common forms of foodstuff and who developed asthma in their home surroundings on exposure to these foods and yet ate them with impunity in the freedom of a convalescent home.

I would say, therefore, that one of the most important but least appreciated roles of the psychological factor in asthma is to render the organism more sensitive to the operation of the physical factors, whatever they may be, which produce the attack.

Conclusion

Having formulated these general principles the treatment would appear clear enough. In many cases the person best able to modify and direct the child's personality development is the child's own parent, and the physician's role should be that of guide to the parents, and often their supporter, in their efforts to follow his instructions. He should bear in mind that the relationship which he observes may not be entirely the fault of the parents, who are often not such fools as they may appear. Where the child's personality is very difficult psychiatric help may be required in modification, but the psychological problem is usually best dealt with by the physician who is looking after the case and who is in control of all the remedial agents. I do not believe there is any doubt that psychological treatment of the kind I have described can play a very important part in moderating the symptoms.

Perhaps I may fittingly conclude with the remark of the mother of the child whose case I described at the beginning, who said after a period of guidance: "He used always to cling to me and wheeze so dreadfully; but now I have made him stand on his own bottom, and he does not have asthma any more."

Much of the work upon which these observations are based was carried out at Guy's Hospital under the direction of Dr. R. D. Gillespie and with the aid of the Rockefeller Foundation. I am greatly indebted to both.