THE HYPERGLYCÆMIC INDEX AS AN AID TO PROGNOSIS.

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THE observations I wish to make in this paper are based upon some work which my colleagues at Cardiff and I have carried out, and which has a bearing on the question of prognosis in the manic-depressive psychoses.

In 1931 Dr. Quastel and I published a paper in the Journal on blood-sugar studies in the various psychoses. In that paper we introduced a method for giving quantitative expression to the hyperglycæmia so often found in the psychoses. By a simple calculation we arrived at a figure which indicated the extent of the hyperglycæmia, and we called it the hyperglycæmic index (H.I.). It was calculated by dividing the 2-hour blood-sugar level—the fasting level—by the maximum level—the fasting level—and multiplying the result by 100. The greater the hyperglycæmia present, the higher the index. We found that hyperglycæmia was common in melancholia and certain stupors, and usually absent in mania, and came to the conclusion that, in the absence of certain factors such as toxæmia, menstruation and glandular dysfunction, the H.I. could safely be regarded as a measure of the emotional tension under which the patient was labouring. We have carried out sugar tolerance tests in many hundreds of manic-depressives, and have found no reason to modify materially any of the views expressed in our original paper. I wish to refer to the importance of the H.I. in prognosis. For this the H.I. should be done on admission; and, if subsequent tests show a fall, this points to an improvement with a favourable prognosis. In the average case this gives little additional information to that which can be gathered from a careful consideration of the subjective and objective symptoms presented by the patient; but it is important in those not rare cases where there is no striking objective evidence of continuing depression, and the patients falsely assert that they are no longer depressed. In our paper we referred to a female patient whose discharge was refused on the strength of a raised H.I., and who on her recovery some months later confessed that her real reason for wishing for her discharge earlier had been so that she might commit suicide.

Recently a voluntary patient of this type, with an H.I. of over 50, insisted on leaving hospital, and her husband could not be persuaded that she was still far from well. For 10 days after her return home her husband was completely satisfied that we had made a mistake; on the morning of the 11th day the patient stated that she felt so well that she insisted on getting up and preparing breakfast; so far the husband had done this; later, thinking something might be amiss, the husband went into the kitchen, to find his wife bleeding profusely from a huge gash in her neck, self-inflicted with a bread-knife. Later in hospital she admitted that, as indicated by her raised H.I., she was definitely depressed when she left hospital. Of course, not all cases who leave hospital still depressed attempt suicide, but I think you will agree that a test which indicates such a possibility is of real value.

Particularly in involutional and senile melancholia one occasionally finds a persistently low H.I. in spite of clinical evidence of melancholia. Such cases are not very common, and I am not yet certain of the true significance of this finding. In our experience at Cardiff, it usually means a bad prognosis. The psychogalvanic reflex is usually absent in such patients, and I am inclined to think that the low H.I. points to a strong hysterical element, and that the patient's complaints of depression are unaccompanied by the secondary reverberations usually associated with emotion—a condition which Golla suggested, from his psychogalvanic reflex studies, was present in hysteria.

A high H.I. is not found in cases of benign stupor, whereas it is by no means uncommon in catatonic stupor. The prognosis in stupor is so much dependent on the diagnosis that anything which classifies the latter is naturally equally helpful in prognosis. One must be very careful here, however, in making use of the H.I., as by no means all cases of catatonic stupor have a high H.I., and, on the other hand, while the H.I. is low in benign stupors it is high in cases of depressive stupor.

As it is not usual to differentiate between benign and depressive stupors, I may be forgiven if I take this opportunity of attempting to do so. Hoch attempted to differentiate the benign stupors, but his work is far from receiving universal acceptance. According to him, this group is characterized by extreme apathy, inactivity and preoccupation, with the idea of death as the sole thought content. It is this last criterion with which I personally find myself in complete disagreement. Personally, I like to regard benign stupor as a form of the manic-depressive psychosis, where the mental mechanism employed is refusal to face reality or to attempt solution of any causal psychic conflict. This mechanism can be regarded either as brought about by, or, as resulting in, apathy. Or one can neglect the psychogenic approach and merely state that the condition is one of apathy, however caused. In any case, the fundamental feature of the stupor is apathy, which necessarily implies an absence of emotional tension. Depressive stupor, on the other hand, I regard as the very antithesis of this. Here the stupor is an expression of the

retardation met with in melancholia—a retardation which has here progressed to mutism and more or less complete inactivity. With the great retardation of depressive stupor goes a correspondingly great depression. This means that depressive stupor is merely an exaggerated degree of retarded depression, whereas benign stupor should be regarded as a phase of the manic-depressive psychosis as distinct as melancholia or mania. If I am correct in stating that benign stupor is characterized by apathy and depressive stupor by depression, then, if the H.I. is an index of emotional tension, it should be able to differentiate between the two; and this, in fact, it does do most successfully. I find that cases of stupor with a high H.I., if questioned after recovery, invariably state that they felt depressed during their stupor, as in fact their occasional remarks and general appearance had indicated, whereas those cases of stupor with a low H.I., questioned on recovery, stated that they felt no depression while stuporose. I am afraid this is a disgraceful digression from prognosis into diagnosis. I will return to prognosis before concluding by stating that I would like to make it clear that I do not for a moment suggest that the H.I. can replace careful clinical examination in helping us to give a prognosis, or to follow the course in any of our patients; but what I do wish to suggest is that it can at times give us valuable assistance in these directions.