

## DEPRESSION AND THE LIVER

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A concept that Samuel Hahnemann and R. Steiner have in common is the importance of the somatic element in mental or psychological conditions. Despite this I feel that we often do not pay sufficient attention to this aspect of our case histories in practice.

Steiner suggested that the so-called mental illnesses were in fact somatic in origin and that one should look for symptoms to identify which organ was at fault and direct one's treatment to that organ.

Hahnemann included mental illness in his category of one-sided illness and emphasized the importance of somatic symptoms in prescribing for conditions presenting with psychic disturbance. It is interesting that two such outstanding innovators should arrive at the same conclusion from entirely different standpoints.

The difficulty of this approach resides in the frequent dearth of symptoms with which to individualize the case, or in severe cases of depression the difficulty of eliciting any symptoms at all. It is this problem which makes it necessary for us to consider the problem of depression from a different standpoint.

Since it is generally held that depression results from a disorder of the brain which is reflected in the psyche it behoves us to consider what evidence there may be for considering the liver as having a role in the aetiology of depression.

Experience is said to be the best teacher and certainly any one who has had an attack of infectious hepatitis will recall vividly the depression that accompanies this illness. The victim feels as if he is about to die, yet feels a total inertia about this. Even the simplest activity becomes completely burdensome. In addition there is usually the typical sleep disturbance. A similar though less severe picture is found in the sufferer from the common hangover. It is noticeable that it is the conditions affecting cellular function which are associated with depression.

We can find another pointer to the liver as a factor in depression if we consider the mental symptomatology of the remedies that we use in the treatment of liver conditions, e.g., Bryonia, Phosphorus, Natrum sulph, Taraxacum, Chelidonium or Stannum. All these remedies show a depressive symptomatology, especially in their mentals.

Having established that there may be a connection between the liver and depression we may now turn to the modern orthodox views on the pathogenesis of depression and see if we can reasonably connect these views with the alternative view set out above.

The basic phenomenon that has been discovered by neurophysiologists

is that there is a correlation between the levels of biogenic amines in the brain and states of depression or mania. The biogenic amines are those which are important in nerve excitation and nerve impulse transmission. There are a group of these of which the most important are noradrenalin and serotonin, both of which have a role in neurotransmission. The former is mainly concerned with the actual transmission of nerve impulses and the latter principally with the maintenance of neurone excitability.

Antidepressants are thought to act by influencing the levels of these substances in the brain. For example, the monoamine oxidase inhibitors which are used in the treatment of depression prevent these amines being broken down after their release from the synapse. We may note in passing that monoamine oxidases are also present in the liver and gut and when these drugs are given they also inhibit these enzymes, with the result that the liver can only cope with minimal amounts of tyramine. If too large a quantity of tyramine-containing food is then taken, the liver is unable to cope and tyramine escapes into the circulation, giving rise to neuroexcitation and a rise in blood pressure. Here we see one example of the role played by the liver in safeguarding mental functions.

The tricyclic group of antidepressants act by blocking reception of the monoamines at the synapse, thereby causing an increase in neuronal excitability. Both types of drug therefore act mainly by influencing the levels of noradrenalin. We have already noted, however, that the general level of awareness in the nervous system is connected with serotonin levels.

The precursor of serotonin in the body is tryptophan which is produced in the Krebs cycle. Tryptophan is normally protein-bound and can only enter the brain in its unbound state. It is freed from its protein binding by increased levels of fatty acids or glucose in the blood. At this point we can begin to see where the liver becomes important. Moreover, excess free tryptophan is broken down in the liver and the metabolites excreted by the kidney. It is thought that by this means the level of serotonin is regulated.

Stress situations increase production of ACTH, which in turn stimulates the production of glucocorticoids and other adrenal hormones which lead to a rise in blood sugar which releases more tryptophan from its bound state for conversion into serotonin, giving rise to an increase in nerve excitability. Perhaps it is this mechanism which allows one to enjoy mild stress and also accounts in part for the sense of well-being that one experiences after a good meal. It could be also that it is for this experience that the overstressed patient craves carbohydrate. Unfortunately, of course, such an indulgence stimulates the production of serotonin so that the last state of such a patient is worse than his first.

These mechanisms break down therefore if the liver is unable to respond to the appropriate stimulus. There is then overproduction of adrenocorticoids which disturbs the fluid balance of the cells and the body as a whole, with retention of sodium and loss of potassium. Moreover, these

hormones are normally broken down in the liver. These phenomena are a *basis for understanding* the liver in general and its role in depression in particular.

Normally the liver has a 24-hour-cycle of activity which is in harmony with the cycle of the endocrine glands, particularly the adrenals. From approximately 4 a.m. to 4 p.m. its activities are primarily anabolic. This is the reason for the well known 4 a.m. aggravation. The daytime phase corresponds to the time of active production of the adrenocortical hormones and is a primarily active phase. This is reflected in the fact that the adrenal hormones prompt the entry of sodium into the cells and the excretion of potassium. Sodium is the ion which corresponds to the animal cell as opposed to potassium which is characteristic of the plant. We can therefore discern in the liver an up-building predominantly vegetative phase and a phase when breaking down predominates and there is an animation or activation of the cells. In depression these phases lose their distinctness and the liver and the organism as a whole become too vegetative—which is the depressed state.

As well as these changes in the electrolytes and in metabolism there are also going on processes of solidification and dissolution. During the day there is a tendency for substances to pass into the liquid phase, e.g., the breakdown of glycogen to glucose, while at night the reverse occurs. These processes go on in all tissues, including the nervous system, but the liver has the primary regulatory function. In all these cases there is a regular diurnal rhythm, with some modification related to food intake and sleep.

*In depression all these rhythms are disturbed together with the related endocrine functions and it is these which give rise to the sleep disturbance which is so characteristic of depression, i.e., early morning waking and disturbance of the sleep rhythms as recorded on the sleep EEG. This is particularly noticeable in relation to the so-called paradoxical or REM sleep, the occurrence of which is known to be associated with psychic well-being. The disturbance of appetite and elimination that one finds in depression can also be correlated with this disturbed liver function.*

We saw above that diurnal cycles of building up and breaking down go on to some degree in all the colloidal fluids of the cells, but there is one tissue in particular where this process is very evident. That is in the formation of cartilage and bone, both in the normal joint and in other tissues in pathological states. Could this be the reason, I wonder, why almost all our liver remedies are also important joint remedies, especially in arthritis where the cartilage and synovial membranes are so particularly involved?

To illustrate some of the points that I have outlined here I would like to consider one liver remedy in more detail. The remedy that I have chosen is Stannum which I think receives insufficient attention in our materia medica.

Tin was known to the old alchemists and they considered that tin had

an especial connection with the liver and with the planet Jupiter which was considered to be the planet governing the functions of the liver. It is this which has given rise to the adjective jovial meaning a well nourished good-humoured individual, an exact description of the person with a well-balanced liver function.

The metal tin is unusual in its physical properties for although it is a soft, rather malleable metal, its structure is in fact crystalline. In this it resembles the liver which looks amorphous but actually has a rather geometrical arrangement of lobules. Tin melts at a low temperature but boils only at a very high temperature. In this behaviour it reveals its partiality for the liquid condition, arriving at it easily and leaving it with difficulty. Behaving in this manner it also shows an ability to absorb large amounts of warmth. Both of these properties recall the liver, for this is also a very liquid organ containing less solid matter than the blood. It is also the warmest organ and the main source of body heat.

Tin mixes easily with other metals, forming alloys and giving to the new material its low melting point and its crystalline structure. Again we can see a resemblance to the liver's function of metamorphosis and its transformation of liquid to solid and back again, e.g., glycogen formation.

Among the tissues of the body the liver has a higher actual tin content than any other organ except for the skin and the tongue. In the skin one can see the tin acting in its role of maintaining form. In the mouth one can see its forming and dissolving actions working in the formation of speech and at a lower level in the salivary digestion of carbohydrates.

From these considerations one might deduce that tin would be a useful remedy in any condition of excessive hardening or its opposite, and this is in fact borne out in practice.

It can be used, for example, in the treatment of the liver itself. Where there is softening of the liver as in hepatitis or toxic states on the hand or at the other extreme as it were, cases of cirrhosis with or without ascites.

In the lung it is an excellent remedy for pneumonia which one could well regard as a dissolving process. It can also be of use in the treatment of fibrotic forms of tuberculosis or in emphysema.

In the nervous system it has been successfully used in the treatment of cases of hydrocephaly and microcephaly, again demonstrating its power to consolidate or to dissolve.

Most important of all perhaps is its use in the diseases of the articular cartilage. It can be employed in the treatment of both osteo- and rheumatoid arthritis, especially when there are effusions into the joints.

In depression it exerts its dissolving action at the level of the psyche, enabling the patient to dissolve his fixed thoughts and to think constructively, and at the same time revitalizes the liver function.

Tin is most often given as the metal. In cases where the dissolving acti-

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Diarrhoea with rectal cancer  
 Tympanites  
 Neuralgia of knees, relieved by pressure  
 Night sweats  
 Worse mornings, rest, lying down  
 Better touch

**CONIUM—hemlock**

*Vertigo on moving head, especially to left*  
*Photophobia*  
 Aching in and around liver. Chronic jaundice  
 Better and then worse for eating  
 Acid eructations  
 Enlarged hard glands  
 Hard lumps in breast  
 Paralysis of lower limbs  
 Yellow skin and finger nails  
 Induration

—*The British Homœopathic Journal, Oct. 1976.*

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vities are too dominant one would tend to use low potencies and where the hardening activity dominates the higher potencies. If the organism is too weak to respond to the medicine given by mouth it can often be more successful by injection in potency. Where one wishes to focus its action on the liver the plant-potentized form *Stannum per Taraxacum* can be used.

To summarize—I have tried to show through this study of depression that the liver function, being a specialized focus of metabolic activity which is common to all cells and tissues can affect the psyche by its malfunction and that by understanding these interrelationships we can use homœopathic medicines in a truly psychosomatic manner.

—*The British Homœopathic Journal, October 1976*