Medical Matters.

THE TECHNIQUE OF OPSONIC WORK.

An interesting article in the *National Hospital Record* describes the Opsonic Department at the Toronto General Hospital.

The Theory.

It is found that when micro-organisms and white corpuscles are mixed together the latter appear not to have any power of digesting the former; but when blood serum is added the polynuclear white blood corpuscles will attack the micro-organisms. This shows that there is something in the serum which prepares the micro-organisms for ingestion by the white corpuscles. This constituent of the blood is called an opsonin (from Opsono, I prepare a feast for). An Opsonin may be said to be that element or chemical constituent of the blood which is formed by the body of an infected person as a result of toxin or poison developed by the infecting organism. Every person has for every disease his own particular resistance. That natural resistance can only promise immunity when the "opsonic index" is normal.

The Opsonic Index.

When one takes a certain measured quantity of the serum of some one or more persons immune from a particular disease and mixes it with a certain definite quantity of anybody's white blood corpuscles, and mixes these with a certain measured quantity of infective micro-organisms (say staphylococci) and incubates the mixture for fifteen minutes at body temperature, it is discovered that the polynuclear white blood cells have incorporated within their protoplasm a certain number of the organisms: say, for example, each white cell (phagocyte) on an average, has ingested 10 staphylococci. Then 10 is said to be the phagocytic index of normal blood to staphylococcal infection. The blood of the patient, a sufferer from boils (staphylococcal infection), is then taken and an exactly similar procedure followed with his blood: i.e., his serum, the same white cells and the same staphylococci, incubated the same length of time; a smear taken and stained, the polynuclear white cells and the number of staphylococci within each one counted, and the average number of the germs in each phagocyte ascertained. The number will, unless the patient is already recovering, be found to be less than the number the cells of the normal blood have ingested. Let the number be 5. This is the patient's "phagocyte index." Now to obtain the "Opsonic index" one divides the patient's phagocytic index by the normal phagocytic index:—5/10 = 5.

The Remedy.

Pure cultures of the invading micro-organisms are obtained and devitalised by heat at a comparatively low temperature—low enough to destroy the bacilli, but not to destroy their protoplasm or toxic principle. The abdominal wall is chosen as the site of inoculation. For a short period after the inoculation, if the white corpuscles are examined, they will be found to contain fewer staphylococci than they did when the examination was made to ascertain the phagocytic index. This is called the "negative phase." But a few hours later another examination will show that their power of phagocytosis is considerably increased over what it was found to be at the original test. This is called the "positive phase"; and this is the time during which the second inoculation is given. Then follows a second negative phase, followed by a positive phase in which it may be observed that the Opsonic index is higher than it was at the acme of the previous positive phase. Another inoculation is given; and so on until the patient's index has reached the index of normal blood, or even higher. When this is reached the signs and symptoms of the disease will have disappeared or be disappearing and the patient on the road to recovery.

HYSTERICAL AND NEUROTIC.

Dr. Samuel West, distinguishing in the *St. Bartholomew's Hospital Journal* between the hysterical and neurotic patient, says:

These terms are often used as if they meant the same thing, but they really represent absolutely different conditions.

A neurotic patient is, as the name implies, full of nerves, that is to say, the nerves play an unduly prominent part. A neurotic patient is capable of great nervous effort, feels everything intensely, pleasure and pain, but has often extraordinary power of self-control.

A hysterical patient, on the other hand, is incapable of prolonged effort, is emotional but not deep feeling, and has a greater or less loss of self-control. The two conditions are intrinsically the exact opposite of one another. Yet they are so far related that the nervous overstrain may in the end lead to such nervous exhaustion that the neurotic may lose self-control and become hysterical.

We draw the attention of nurses to these remarks, because the condition of hysterical and neurotic patients is often little understood, and no opportunity should be lost of endeavouring to learn something of the obscure ailments from which they suffer.

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