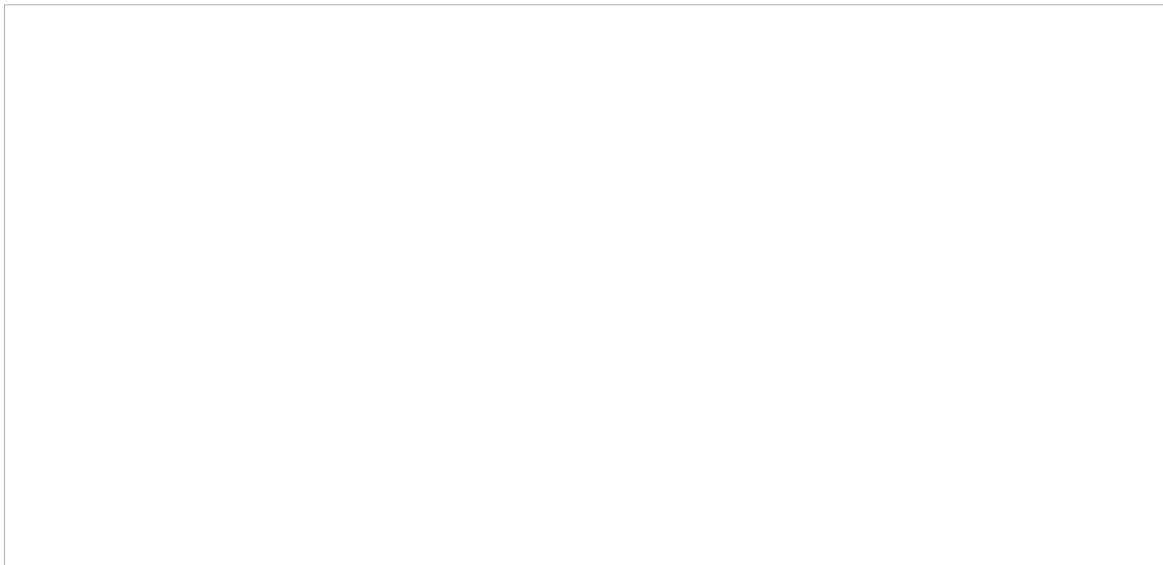


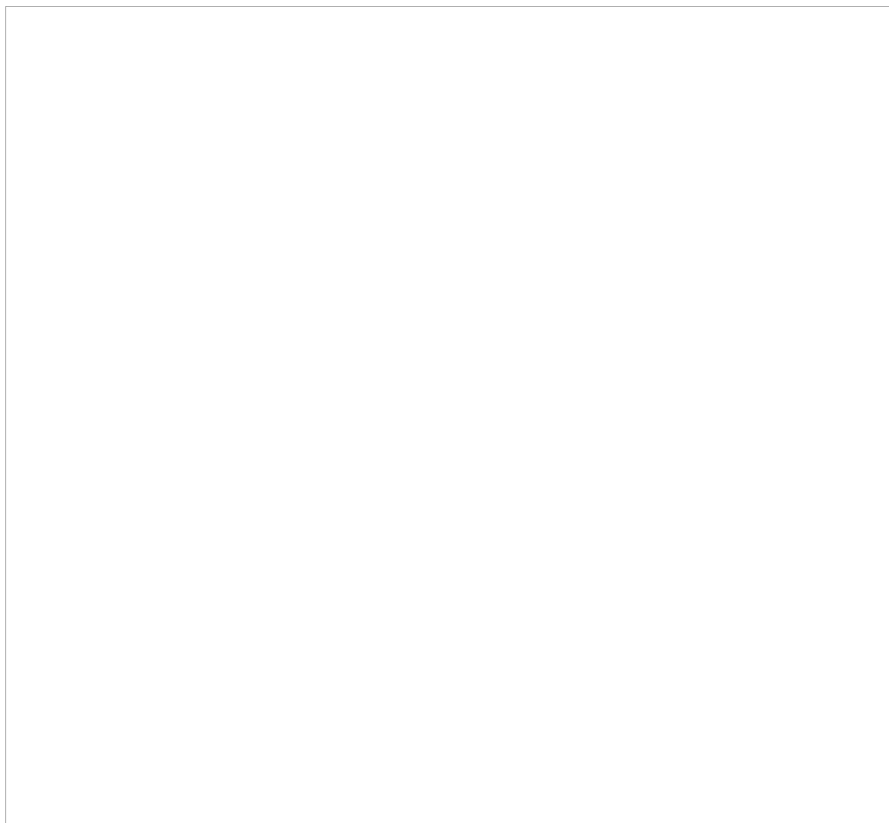
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NARCOTHERAPY OF SCHIZOPHRENIA BY INTRAVENOUS ALCOHOL DRIP METHOD

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PRELIMINARY COMMUNICATION

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While it is an ordinary occurrence for theory to lag behind practice in all fields of life, the reverse condition has come to exist in the field relating to narcotherapy of psychoses, where psychiatric practice lags behind the theoretical developments of I. P. Pavlov and his pupils.

After having tried a number of remedies (somifen, ^kdoletan, veronal, luminal, etc.), psychiatrists have come to depend on one agent, sodium amytal, which leaves patients in a state of partial (not unbroken) sleep.

This type of treatment, however, is far from the stage where it may be considered satisfactory. It is substantially less effective than insulin shock treatment. This explains the fact that treatment by prolonged sleep is used less than treatment with insulin for most cases.

Is there any justification for hoping that narcotic sleep would be more effective if it were to be induced by other preparations? Of course there is.

A number of investigations, especially the investigations of V. S. Galkin, have shown that the reactions of the organism during narcotic sleep tend to vary depending on the character of the narcotic.

The problem in the search for new methods of producing prolonged sleep, we think, may be defined as follows. It is necessary to find a sleep-inducing agent in which therapeutic action would not only result from the sleep it induces but also from the properties of the agent itself. Our investigations for such agents have led us to adopt ethyl alcohol.

To explain our choice let us first of all consider the exchange of opinion that took place at one of "Pavlov's Wednesdays" (4 April) in 1934. V. P. Golovina said during the course of a discussion on the action of narcotics: "Do you remember patient S. who had been completely blocked up? When we gave her some alcohol she began to talk without ceasing." To which I. P. Pavlov replied: "That is to say we destroyed her block, and so for a whole month she acted without any brakes."

Thus attempts were made in Pavlov's laboratory to use alcohol as an agent for influencing the psychotic condition of schizophrenics.

A number of considerations and facts have caused us to regard alcohol as an agent capable of exerting a therapeutic influence on the schizophrenic process.

1. Psychiatric practice established long ago that the

per hour according to one source, 16 milliliters per hour for whatever quantity is present according to another source).

^{oxidation processes in the presence}
~~The oxidizing~~ action of alcohol in contrast with other narcotics increases rather than decreases; ^{alcohol} it stimulates the utilization of glucose by the different tissues (V. I. Prostyakova).

We thus had adequate reasons for settling on alcohol in our search for agents capable of producing prolonged narcosis.

However, a problem of purely methodological character arose -- to find a means for repeated, daily introduction of ethyl alcohol into the organism in considerable doses with a dual purpose: (1) to cause patients to fall daily into a narcotic sleep and (2) to be able to assure the organism's receiving a subsequent dose of alcohol before the alcohol already within the system has completely been burned up, or, in any case, before its effect has worn off.

We could not employ the usual method used by surgeons for introducing it internally, inasmuch as two or three such doses would inevitably produce thrombophlebitis and would make it necessary to stop further therapy. Moreover, it was necessary to prevent the denaturation of ^{proteins} ~~albumins~~ in the blood with possible onset of hemolysis.

Our attempts begun in April 1948 were successful. We found a liquid with a composition that met the requirements mentioned above and one in which the percentage of alcohol could be altered to suit the condition of the patient. We introduced this

liquid intravenously by the drip method.

In March 1949 we were given two cots in the hospital ward for therapy with this liquid.

Altogether we applied the alcohol-containing liquid by the drip method 588 times.

Four hundred twenty-six injections were made as course treatments of psychoses, 56 for diagnostic purposes, and 70 for improving the somatic condition of patients.

Injections for improving the somatic condition were given to 11 severe chronic cases who were suffering from emaciation due to prolonged refusals of food or from comparable ailments. As a rule the injection aroused the appetite; the patients improved physically. Parallel with this, the psychic condition in the majority of cases tended to straighten out to some extent (internal improvement of illness). Three of them were discharged from the hospital into the care of relatives.

Those injections that had been made for diagnostic purposes, as a rule, helped to establish the genesis for different conditions of stupor; they are now being used as a method of differential diagnosis for cases involving forensic psychiatric expert opinion.

On the average each course of treatment for a patient requires 11 injections. Remission took place for 13 patients, while the therapy gave no results in 10 cases. The last figure in a sense is indicative of hurry on our part to terminate therapy

for the groups that had been showing no results.

Patients who had remissions remained in the fixed group for an average time of 35 days (from the first injection to discharge).

The narcotherapy as we conducted it involved two phases: the first consisted of a state of activity, the second, a state of narcotic sleep.

The activity (as confirmed by self-observation) is characterized by the combination of hypomania with a manifestation of deafening and a narrowing of awareness. In this phase the patient undergoes a feeling of general release, tries to move around, talk, and to orate. They dwell on experiences that have an emotional cast to them. Patients more frequently than not become euphoric, occasionally depressed. They disclose involved experiences. Special features of personality hitherto unknown because of inhibitions or inaccessibility are disclosed in this phase, creating an opportunity for determining the relationship of patients to their surroundings, the character of their thinking, and the types of their reactions. It becomes possible to achieve a rapport with patients (an important moment for psychotherapy). This phase is often forgotten by patients.

The narcotic phase is characterized by differences in depth varying from a state approximating surgical narcosis to a more superficial condition resembling physiological sleep. We did not attempt to deepen the narcosis. The duration and

depth of the phases depend upon the concentration and rate of introducing the narcotic mixture. The average effectiveness for each infusion is 3 to $3\frac{1}{2}$ hours (Figures 2 and 3).

Upon awakening, the patients are slightly deaf, the hypomania usually being expressed to a lesser degree and for a shorter period of time.

During the period of the injection there is noted a hyperemia of the skin surface, particularly of the face, which varies with the amount of the narcotic mixture absorbed by the organism. This is accompanied by increased sweat secretion. The pulse rate fluctuates 5-10 beats above and below the usual rate. At the same time it is stronger and softer as in insulin hypoglycemia. Respiration is free and deep. The blood pressure at first decreases by 10-12 milligrams, but 2-3 hours after the injection it returns to its original level. Increased diuresis is observed. The eye reflexes, the tendon reflexes, and sensitivity vary, depending upon the depth of the narcosis.

We make daily injections for 4-5 days, discontinue for 2-3 days, and then repeat -- two to four rounds altogether. The 24-hour cycle for patients at this time is divided as follows: a state of hypomaniacal excitement with a change in consciousness lasting 2-5 hours; a state of narcotic sleep and drowsiness lasting 4-8 hours; regular nightly sleep (which does not suffer) lasting 9-10 hours; and a condition which is normal for the patient lasting 4-6 hours. During the period of therapy there is increased appetite (one female patient was affected by bulimia) and patients gain in weight. Several female patients who had not

menstruated for 3-4 months did so, which may be explained probably by its being a component of stimulating therapy at the expense of the denaturation of ^{proteins} albumins in the blood. Some of the patients were observed to have an insignificant decrease in the number of erythrocytes, hemoglobin, and leucocytes; these levelled out after the 2-3 day interval. The urine underwent no change.

Among unpleasant, indirect manifestations we noted only vomiting on the part of several patients (which began with the first few injections and disappeared after the concentration of the solution was diluted), and irritation (redness, slight fever) along the veins, which disappeared 3-4 days following the termination of the injections. A non-pathological hardening of the veins that receive the injections is observable for about a third of the patients. It has also proved to be temporary. Not once did we find ourselves obliged to use heart stimulants or lobelin or to stop the injections because of the development of any general manifestations of collapse.

The entire procedure is carried out by a nurse, although, of course, a doctor is present in the ward.

The outward behavior of patients changes after the first few injections. Among recently affected schizophrenics it is expressed first of all in the release of inhibitions and change in mood in the direction of hypomania, in a change in attitude toward hallucinations, in the disintegration of delirium spells which up to the time had conditioned the affective strain of the patients. Incipient hysterical symptoms and an intensification of sexual fantasies are observed. A disappearance of auditory

hallucinations takes place for some during the course of the first phase. Effects of this kind are less evident during the period of released inhibition in cases of prolonged illness.

Forty patients received complete treatments: 35 suffering from schizophrenia, 3 from reactive depression, and 2 from circular psychosis. Eleven patients received injections to improve an aggravated somatic condition, and 13 patients, principally suffering from stupor, to determine the diagnosis.

It is difficult to speak positively of the effectiveness of the therapy in the face of such a small body of material. We have a considerable amount of experience with respect to women because Ye. S. Zorina has been using this therapy in the women's ward since 1949.

For 24 patients two had type A remissions, six type B, five type C, and four type D, while seven disclosed either a change of syndrome or no change whatever.

Similar figures were obtained at the Yaroslavl' hospital while using insulin shock therapy.

The male ward showed considerably poorer results. Of 12 schizophrenic cases, one had type A remission, one type B, one type C, and three type D, while the state of six patients showed no change.

It would be premature for us on the basis of this data, to make the obvious conclusion that men are less amenable to cure by this method because they have used alcohol more heavily

in the past. The fact is that this therapy was conducted in the men's ward only during February, that is, only during the period when we were trying to establish our method. The average number of injections was seven, that is, the majority had undergone a single five-day course of treatment.

All three patients suffering from reactive stupor recovered; one circular patient (maniacal condition) was discharged as cured; and the second (in a depression phase) showed no improvement. The correlation between the effectiveness of therapy and the length of illness has not yet been established. Of 17 patients who had been ill for one year, 7 had type A, B, and C remissions; of 11 patients who had been ill for more than three years, five had remissions. The greatest duration of catamnesis was one year for a type A remission.

We are not going to construct any theories concerning the mechanism of interference by our method with respect to the pathologically-changed higher nervous functions. Instead we shall cite certain findings of Pavlov and his pupils.

Pavlov once said: "During the thirty years we have been working with conditioned reflexes, we have continually received the impression that the inhibition process is more labile than the stimulation process, that is, that it is much more easily disrupted and weakened from different actions than is the stimulation process." (Pavlov's Wednesdays, tom II, page 274).

Just as did Pavlov, so did psychiatrists working with him explain the majority of the manifestations of schizophrenia by the

pathology (irradiation, inertness, paradoxical and ultraparadoxical phases) of the inhibition process.

It is known that the first fact that was established in studying the action of alcohol (I. V. Zavadskiy, M. P. Nikiforovskiy, A. A. Lindberg, F. K. Fedorov, M. K. Petrova) was that it first of all paralyzes the inhibition process and only then does the paralyzing process spread to stimulation.

It has been established through the last researches of V. K. Fedorov that the paralyzing action of a narcotic affects first of all the more delicate, new, and least securely established nervous processes in the large hemispheres.

These experiments have disclosed that new, delicate, and fragile processes may take place as pathological connections, which are broken by alcohol. Alcohol can help reestablish conditioned reflex actions.

The following statement of I. P. Pavlov is most important for us: "Where you have a hypnotic condition, the inhibition process is the most important functional activity, whereas the paralyzing force of narcotics tends to weaken this process. When you have a reverse condition, that is, when the stimulating process predominates and the action of the inhibition process is entirely absent, then the paralyzing agent affects the positive process." (Pavlov's Wednesdays, tom III, pages 233-234).

Consequently alcohol acts upon that which is predominant for a given pathological functioning of the cortex.

This statement of I. P. Pavlov serves to explain the positive action of the therapy we are studying in the healing of different psychotic conditions.

In evaluating schizophrenic symptoms as the manifestation of a chronic hypnotic, that is, inhibitive, state, Pavlov wrote: Thus, this state, on the one hand, is pathological -- pathological inasmuch as it deprives the patient of the possibility of normal activity; on the other hand its actual mechanism makes it physiological -- physiological inasmuch as it protects the cortical cells from threatening disintegration caused by work they cannot handle." (An Experimental Excursion of a Physiologist into the Field of Psychiatry).

When using these statements of I. P. Pavlov in psychiatric therapeutic practice, there is generally applied the second part of the sentence just quoted, that is, the idea of the protective role of inhibition.

Nevertheless, it is necessary to make use of the first part of Pavlov's utterance for certain cases of schizophrenia, where chronic inhibition is referred to as being pathological.

It would be proper to mention that the self-healing of a catatonic stupor which had continued for twenty years was explained by Pavlov by the fact that the onset of old age had removed the inhibition.

There seemingly are schizophrenics who should be treated not so much by intensifying the inhibition as by removing it.

Alcohol in this sense has certain undoubted advantages, inasmuch as it clearly is able to bring on two phases of activity -- inhibitive and release of inhibition.

In our practice we do not by any means hasten and deepen the second phase for all cases; quite frequently we try to prolong the first phase, easily achieved by using the drip method of administering the preparation.

We naturally do not have as yet any hard and fast criteria on the basis of which it would be possible to say in what cases the first phase should be prolonged or should be used exclusively, and in what cases it should be curtailed as much as possible or even eliminated (which is possible by a preliminary administering of pentothal, a narcotic with a single-phase action). Here we are completely in the field of clinical experience, similar to the way in which the question of determining on the basis of clinical practice whether hypoglycemic or shock doses should be used in insulin therapy.

Many workers (Narbutovich and Golovina, Perel'man, Ivanov-Smolenskiy, Gilyarovskiy, Razymovskaya-Molukalo, Svyadosh, etc) have used alcohol in the form of sporadic injections of small doses so as to temporarily release the inhibition factors of patients who are in a stupor. We have used it as an agent in course sleep therapy and, as far as can be determined by preliminary observations, with satisfactory results.

[Note: Article includes four photographs]

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