KETAMINE PSYCHEDELIC THERAPY (KPT) OF ALCOHOLISM AND NEUROSIS

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We began to use ketamine for alcoholism therapy in 1985. At that time, we did not know very much about psychedelic therapy. So at the beginning of our research we put an accent on making suggestions for sobriety during the ketamine session, on personality oriented psychotherapy (to resolve personality problems), and also on the association between negative emotional experiences during the ketamine session with the smell and taste of alcohol (aversive conditioning aspect). We supposed that ketamine would give us an opportunity to direct our psycho-therapeutic influences and suggestions to the deep subconscious levels of the psyche which would help us to make our alcoholism therapy more effective. But than we found out that our patients often had deep mystical and transpersonal experiences during the ketamine session. At the same time we received some excellent books and articles on psychedelic therapy and transpersonal psychology. Both of these circumstances led us to change our KPT paradigm and we began to use a more existentially-transpersonally oriented paradigm.

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All psychedelic drugs were forbidden for use in Russia in the 1980's. However, ketamine was allowed for use in anesthesiology for general anesthesia. Nevertheless, it was necessary for us to receive special permission from the Pharmacological Committee for ketamine psychedelic therapy of alcoholism because we were going to use ketamine for another indication than anesthesiology. It was not so easy but eventually we got permission for ketamine psychedelic research.

First Stage

Three main stages in our method of KPT can be distinguished. The first stage is preparation. In this stage, preliminary psychotherapy is carried out with patients. During these psychotherapeutic sessions it is explained to the patient that the removal of their dependence from alcohol will be induced in a special state of consciousness in which they will have deep experiences that will help them to realize the negative sides and results of alcohol abuse, and the positive sides of sobriety. Such realizations and sharp experiences of the negative aspects of alcoholism and the positive sides of sobriety will cause a subsequent psychological unacceptability of alcohol abuse and a stable orientation towards sobriety. We also explain to the patients that during the psychedelic session important insights concerning the meaning and values of their life and their personality's problems will take place which will be very auspicious for their new sober life.

Second Stage

The second stage is KPT itself. During this procedure aethimizol (1.5% 3 ml, i.m.) is injected into the patient and after this bemegride (0.5% 10 ml, i.v.) and then ketamine. We use ketamine doses from 2 - 3 mg/kg, i.m. Bemegride being anxiogenic enhances the negative emotional experiences and visions produced by ketamine, and aethimizol promotes the stable fixing of experiences in long-term memory. Moreover, both of these drugs (aethimizol and bemegride) are analeptic drugs which enhance cortical activity and thus widen the opportunities for psychotherapeutic dialogue with the patient during the ketamine sessions. In the last several months we have begun to prescribe a central calcium channel antagonist (nimodipine) before the KPT session to improve the patient's memory about their psychedelic experience because it was shown that calcium channel antagonists reverse the memory disturbances produced by ketamine in rats.

With a background of special music, the patient having a KPT session is exposed to psycho-therapeutic influences. The content of these influences is based on the concrete data of the patient's an-amnesis [case history] and is directed toward the resolution of the patient's personality problems and toward the formation of a stable orientation towards sobriety. We try to create a new meaning and purpose of life in our patients during this session. The specific character of our KPT method allows us to carry out a special psycho-therapeutic

dialogue with the patient undergoing their psychedelic experience. We emphasize the positive values and meaning of a sober style of life and the negative aspects of alcohol abuse during this dialog which has a specific personal orientation for each patient. The second stage of KPT is conducted by two physicians, a psychotherapist and an anesthesiologist, because some complications and side-effects (such as: increased blood pressure, convulsions, stoppage of breath) are possible though exceedingly rare.

Third Stage

In the third stage, group psychotherapy is carried out with the patients taking KPT the previous day. During this session the patients discuss and interpret the individual personal significance of the symbolic content of their psychedelic experience with the psychotherapist. This discussion is directed toward helping the patient make a correlation betwen their psychedelic experiences with their personality's problems and with the problems of their life (first of all connected with alcohol abuse), and thereby to a realization and solidification of their desire for a new sober life. We are also trying at this stage to help our patients to accept new attitudes to one's self and the world around them, new values, and a more spiritual world view produced by the ketamine psychedelic experience.

The KPT was carried out in 86 alcoholic male patients at the end of their three-months of in-patient treatment in our hospital. All patients wished voluntarily to take this therapy and gave their written consent for this treatment. The control group consisted of 100 alcoholic male patients who took the same course of treatment with the traditional methods in the same hospital. There were no significant differences between the experimental and control groups either in the age or in the severity of alcoholism.

According to the data from a follow-up study of patients taking KPT, total abstinence for more than one year was observed in 60 subjects (69.8%). In the control group, sobriety for more than one year was only observed in 24 patients (24%). Thus, the data from the follow up study testify to a considerable increase of efficiency of the alcoholism treatment owing to KPT.

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Results

According to MMPI data, our analysis of psychological changes in the experimental group testifies to a definite, rather expressed dynamic in the patient's MMPI profiles. Particularly, after the KPT the indices were decreased for the majority of the main MMPI scales. The most expressed, statistically significant decrease in the profile was in the scales "hypochondria", "psychostenia" "schizophrenia" and also in Taylor's scale of anxiety. On the whole, such favorable psychological dyanimics testifies to the fact that the patients became more sure of themselves, their possibilities, their future, less anxious and neurotic and more emotionally open after KPT.

A Subsequent Study

In our subsequent study we investigated changes in the psychosemantic domain induced by KPT. The study used the data from 32 alcoholic in-patients treated by KPT in our hospital. All patients were examined by the personality differential test (PD) (a personality oriented version of Osgood's semantic differential) and also by the color test of attitudes (CTA) before the treatment and after it.

Both PD and CTA were organized in such a way so that one could define peculiarities of the alcoholic patients' personality attitude systems. The combination of PD and CTA allowed us to assess to a certain extent changes of attitudes which occured both at the conscious and subconscious levels after KPT. Using these tests for the above purpose allowed us to analyze the following spheres of a person-ality's relations: the relation to oneself, to one's close relatives, to the ideal image of self, to a psychotherapist and one's own alcoholic disease, to the images of "Me sober" and "Me drunk". CTA were performed in the following way: at first a patient was requested to arrange 8 colors of Luscher's test in order of correspondence (similarity) to each of the above-mentioned images. In conclusion, he was requested to arrange the same colors in order of preference (by the preference degree). After that, to

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assess the attitude to the definite image two allotments were compared. In the first one the patient arranged 8 colors of Luscher's test in the order of correspondence to the image: for the "most similar, suitable" to the "most different, unsuitable"; as for the second allotment (the same for all images) the patient arranged the same colors in the order of preference.

Results

The analysis of the CTA results revealed that after KPT there occurred significant positive changes in the nonverbal emotional attitude to a psychotherapist, close relatives, to the ideal image of self, and to the image "Me sober".

At the same time, the attitude to the image "Me drunk" became more negative; in respect to alcoholism there occurred certain negative changes. The attitude to the person himself before treatment was hardly changed at all. According to the PD data, significant positive changes occurred after KPT only in respect to the attitude toward the person himself.

After KPT there occurred a considerable decrease in differences between the indicies of CTA and that of PD in respect to the same images. This decrease evidenced the reduction of the difference between the verbal (realized) and nonverbal (unrealized) assessments of personal attitudes. Such reduction was mainly related to the change in the CTA indices and appeared to be the strongest for the sphere of attitudes to a psychotherapist, relatives, the image "Me sober" and the ideal image of self.

Thus, the KPT produced considerable and significant positive changes in the domain of personality attitudes, which took place due to the transformation of nonverbal (unrealized) emotional attitudes.

One should also underline the fact, that according to the CTA data, there occurred strong positive changes in patients' nonverbal (unrealized) assessments of the attitudes to a psychotherapist, close relatives, to the image "Me sober", and to the ideal image of self. This means that the patient has internally grown to emotionally accept these images and, in its turn, the attitudes to sobriety connected with them.

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A special note should be made of the discrepancies between the verbal and nonverbal estimates of a patients' personal attitudes registered before KPT. These discrepancies, obviously, reflect the presence of an essential discord between the conscious and unconscious estimates of a personality's attitudes. Such discord may give rise to psychological discomfort, internal tension, to difficulties in the communication with the environment, i.e. to the reduction of a person's adaptation, which after all leads to the alcholism relapse. Therefore, the reduction of such discord due to KPT should be considered as an achievement of a personality's psychological status which favors sobriety.

It is important to note that the reduction of differences in verbal and nonverbal assessments of a per-sonality's attitudes which occurred due to KPT may be considered to result from the realization of a personality's repressed main internal conflicts and negative aspects of concepts of one's "Self" in one's mind during the KPT procedure.

Thus, this complex psychological research shows that KPT results in a correction of the personality of alcoholic patients which promotes sobriety. Regarding that correction, the processes occurring at the unconscious level play a considerable role in it.

Content Analysis

We also carried out content-analysis of psychedelic experiences written down by our patients after their KPT sessions. These descriptions often had common plots: the feeling of separation of consciousness from the body, losing of the sense of "Ego" and self control, one's self ("Ego") death and rebirth experience, the journey of consciousness in strange multidimensional bright "holographic" other worlds, the complex "oceanic" sense of being dissolved and united with the Universe, encounter with God or Higher Power, etc. But it is necessary to note that in spite of the presence of common plots in patients' experiences, they always were individually specific, reflecting in direct or symbolic form the patients' specific personality problems.

Analysis of the data of content-analysis and MMPI scores revealed statistically significant correlations

between the scores of some MMPI scales and the character of psychedelic experiences. It is possible to conclude that the character of the ketamine psychedelic experience is determined to a certain extent by the personality features of the alcoholic patient. We also identified a strong positive correlation between the character of the psychedelic experience and the clinical result of KPT with alcoholics: the more negative was the psychedelic experience, the longer the period of sobriety lasted.

Effects on Spirituality

In our latest work we have shown that a profound mystical experience during the KPT results in an increase in the level of the spiritual development of the alcoholic patient. For the assessment of the changes of spirituality we used our own special Spirituality Scale based on the combination of the Spirituality Self-Assessment Scale developed by Charles Whitfield, who studied the importance of spirituality in alcoholism therapy, and the Life Changes Inventory developed by Ken Ring to estimate the changes into values and purposes of life produced by near-death experiences. It was demonstrated by our Spirituality Scale that the increase in the level of spiritual development of our alcoholic patients due to KPT was comparable with the increase induced in healthy volunteers by a special course of meditation and was much greater then the changes in spiritual development induced in alcoholics by a relaxation technique training program. It is evident that the increased spiritual development induced by KPT in alcoholic patients is very auspicious for sobriety. Moreover, the results of the study of KPT's influence on spirituality testify that KPT is much more than simply a creation of an attitude in alcoholic patients toward a sober life. These results testify that KPT brings about profound positive changes in life values and purposes, in the attitudes to the different aspects of life and death, and, in its turn, in the alcoholics' world view.

Biochemical Investigations

We also carried out biochemical investigations of the underlying mechanisms of KPT. The results of the biochemical investigations have shown that during the KPT procedure there occurred a real decrease in the activity of monoaminoxidase type A (MAO-A) in blood serum and MAO type B (MAO-B) in blood platelets, and also there was an increased dopamine level in blood. Serotonin concentration was not altered significantly. Increase of ceruloplasmin activity was statistically significant and the B-endor-phine level increased during the KPT procedure.

The influence of different ketamine concentrations on MAO-B activity in blood platelets in vitro was investigated in two series of investigations distinguished by the concentration of the substrate (benzylamine). The obtained result (intersection of straight lines of dependence on enzyme activity on inhibitor concentration on the abscissa in Dixon's graph) testified to the noncompetitive character of the inhibition of MAO-B activity by ketamine. It was also established that ketamine induced a similar increase of oxidative ceruloplasmin activity by its dimension in samples both of human blood serum and of crystallinely clear ceruloplasmin.

The changes of the neuromediatory metabolism have some notable aspects. First, they allow some opinions about the neurochemical mechanisms of keta-mine's psychedelic action to be formed.

Second, the fact that the pharmacological action of KPT effected both monoaminergic and opioidergic systems, i.e. those neurochemical brain systems which are connected to the pathogenesis of alcohol dependence, is an important result of this biochemical investigation. It is possible that this fact exactly causes to a certain extent the efficiency of this method.

The increase in the level of spiritual development of our alcoholic patients due to KPT was comparable with the increase induced in healthy volunteers by a special course of meditation

KPT and Neuroses

We are currently continuing with our research of KPT. In 1990-1991 we began to develop a large project researching ketamine psychedelic therapy in the treatment of neuroses. We are carrying out research into the clinical efficacy of KPT for different kinds of neuroses and also are studying the psychological, biochemical, and neurophysiological underlying mechanisms of KPT in neurotic patients. We are also studying the subtle psychosemantic alterations induced by KPT on the conscious and subconsicous levels in alcoholic and

neurotic patients. The main tool for measuring these alterations is the original version of the verbal and nonverbal repertory grids tests which were specially worked out for this purpose in our laboratory. Our repertory grids were organized in such a way as to assess the key aspects of being of the self andthe surrounding world in existentially-transpersonally oriented terms.

Another direction of our research now is EEG computer-assisted analysis of the underlying mechanisms of KPT of alcoholism and neuroses.

We currently have only preliminary data on the effect of KPT on neuroses. According to this data, KPT is more effective in the treatment of neurotic depression, post-traumatic stress disorders, and phobias; hysterical neuroses are more rigid after KPT.

The preliminary data of our research with verbal and nonverbal repertory grids have shown that KPT brings about positive changes in the verbal (realized) and nonverbal (unrealized) attitudes to the different aspects of being of the self and the surrounding world in our patients. KPT results in positive changes in the world view, and KPT also causes a existentially-transpersonally oriented world view to be more acceptable to our patients.

According to the preliminary data of EEG computer-assisted analysis we discovered that KPT increases theta-activity in different regions of the brain cortex. There is evidence of limbic system activation during KPT, as well as evidence of the reinforcement of the limbic-cortex interaction. This fact can be also considered to a certain extent as indirect evidence of the strengthening of the interactions between the conscious and subconscious levels of the psyche during the KPT.

In 1990-1991 we began to develop a large project researching ketamine psychedelic therapy in the treatment of neuroses.

If permission is granted for our MDMA research project, we will need to receive outside funding, hopefully from MAPS, so that we can afford to conduct the research.

We have already treated with KPT more than six hundred alcoholic patients, and we hope we will have an opportunity to continue our KPT research in St. Petersburg in spite of the economic collapse in Russia and the breakdown of the Russian science and health systems.

Future MDMA Studies

In addition, we are also trying to receive permission from the Russian Medical Authorities to carry out MDMA (Ecstasy) psychedelic therapy of terminal cancer patients and alcoholic patients. If permission is granted for our MDMA research project, we will need to receive outside funding, hopefully from MAPS, so that we can afford to conduct the research. ■

In conclusion I have to note the names of all collaborators of our research team who participated in our KPT research programs in Leningrad Regional Dispensary of Narcology:

Principal Investigator:
Krupitsky, E.M. — psychiatrist, M.D., Ph.D., Chief of the Research Laboratory.

Main Researchers:
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Grinenko, A. Ya. — Chief of the Leningrad Regional Dispensary of Narcology, M.D., Ph.D.

Associate Researchers:
Kungurtsev, I.V. psychiatrist, psycho-therapits, M.D.; he took part in the beginning of the research of the KPT of neuroses for several months.
Luchakova, O.M.D., Ph.D., neuroscientist; she carried out the course of teaching of meditation with volunteers in control group.
Priputina, L.S. — psychopharmacologist, M.D., Ph.D., specialist in calcium channel antagonists.

To support the work of MAPS see pages 34 – 35