

Second Edition

CARBON DIOXIDE THERAPY

Edited by

L. J. MEDUNA, M.D.

Professor of Psychiatry

University of Illinois

College of Medicine

Chicago, Illinois

Most valuable to general practitioners and psychiatrists is the step-by-step description of technique and general features of the administration of the carbon dioxide treatment. Indications and contraindications of the treatment are given as well as warnings, safeguards, etc.



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A Symposium
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THE CARBON
DIOXIDE
RESEARCH
ASSOCIATION

(Second Edition)

CARBON DIOXIDE THERAPY

A Neurophysiological Treatment of Nervous Disorders

Edited By

L. J. MEDUNA, M.D.

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CARBON DIOXIDE THERAPY

CONTENTS

	Page
<i>Contributors</i>	v
<i>Roster of Members and Officers of the Carbon Dioxide Research Association, Inc.</i>	vii

TECHNIQUE AND THEORY

INTRODUCTION by L. J. Meduna, M.D.	3
THE PHYSIOLOGICAL BASIS OF CARBON DIOXIDE TREATMENT, by L. J. Meduna, M.D.	10
THE EFFECT OF CARBON DIOXIDE UPON THE FUNCTION OF THE HUMAN BRAIN, by L. J. Meduna, M.D.	35
A NEUROPHYSIOLOGICAL THEORY OF PSYCHONEUROSES, by L. J. Meduna, M.D.	57
TECHNIQUE AND ADMINISTRATION OF THE CARBON DIOXIDE TREATMENT, by L. J. Meduna, M.D.	80

CLINICAL INVESTIGATIONS

CARBON DIOXIDE THERAPY OF ANXIETY STATES AND PHOBIC REACTIONS, by John D. Moriarty, M.D.	103
CARBON DIOXIDE IN PEDIATRICS, by L. Douglas MacRae, M.D.	146
SOME CLINICAL OBSERVATIONS PERTAINING TO THE EFFECTS OF CARBON DIOXIDE ON THE BIOLOGY OF MENTAL DISEASE, by William E. Wilkinson, M.D.	165
THE HANDLING OF OBSSSSIVE-COMPULSIVE NEUROSIS WITH CARBON DIOXIDE THERAPY, by A. I. Jackman, M.D.	202
CARBON DIOXIDE THERAPY IN PRISON WITH SOME COMPARISONS IN PRIVATE PRACTICE, by Harry Brick, M.D.	213
CARBON DIOXIDE IN OBSTETRICS, by L. Douglas MacRae, M.D.	231
TREATMENT OF DEPRESSIVE REACTION WITH CARBON DIOXIDE THERAPY, by A. I. Jackman, M.D.	245
CARBON DIOXIDE THERAPY (CDT) IN ANXIETY REACTIONS, by John Alfred Frank, M.D.	251
CARBON DIOXIDE IN TREATMENT OF SEX DEVIATIONS, by Robert P. Odenwald, M.D.	256

MODIFICATION OF MEDUNA'S TECHNIQUES OF CARBON DIOXIDE TREATMENT

	Page
RAPID COMA TECHNIC OF CARBON DIOXIDE THERAPY, <i>by</i> Albert A. LaVerne, M. D.	269
FRACTIONAL ADMINISTRATION OF CARBON DIOXIDE IN THE TREATMENT OF NEUROSES, <i>by</i> W. M. C. Hartowes, M.D. and Z. Selinger, M.D.	294
SELECTIVE USE OF CARBON DIOXIDE AS AN AID TO PSYCHO- PENETRATION, <i>by</i> Paul H. Wilcox, M.D.	306

PHYSIOLOGICAL AND PSYCHOLOGICAL INVESTIGATIONS IN THE USE OF CARBON DIOXIDE TREATMENT

PHYSIOLOGICAL EFFECTS OF CO ₂ AS RELATED TO CO ₂ THERAPY, <i>by</i> Karl Ernst Schaefer, M.D.	329
THE MECHANISM OF THE ACTION OF CARBON DIOXIDE ON THE CEREBRAL CORTEX, <i>by</i> F. A. Pickworth, B.Sc. (Hons, Lond.) M.B., B.S., (Lond.)	339
CARBONIC ANHYDRASE IN RELATION TO CARBON DIOXIDE TREATMENT, <i>by</i> Winifred Ashby, Ph.D.	357
AUTONOMIC NERVOUS SYSTEM TESTS AND PROGNOSIS IN CARBON DIOXIDE, <i>by</i> Werner Simon, M.D.	365
PROGNOSIS WITH CO ₂ THERAPY, INCLUDING THE EPINEPHRINE- MECHOLYL TEST (FUNKENSTEIN TEST), <i>by</i> John D. Moriarty, M.D.	376
PSYCHOLOGICAL TEST PATTERNS AND CARBON DIOXIDE THERAPY, <i>by</i> Werner Simon, M.D.	396
PSYCHODYNAMIC EXPLORATION AND PSYCHOLOGICAL TEST DATA WITH CARBON DIOXIDE THERAPY, <i>by</i> Norman R. Rogers, M.D. and Sue S. Kalua, M.A.	407

STATISTICAL EVALUATION

THE USE OF PUNCHED CARDS IN THE STATISTICAL ANALYSIS OF CARBON DIOXIDE TREATMENTS, <i>by</i> Robert E. Peck, M.D.	425
NEUROTIC INDEX EVALUATION OF THE EFFECT OF CO ₂ THERAPY OF 500 PATIENTS, <i>by</i> A. I. Jackman, M.D.	432
CARBON DIOXIDE THERAPY: A COOPERATIVE STATISTICAL STUDY, <i>by</i> Robert E. Peck, M.D.	444
<i>Contributors</i>	495
<i>Bibliography</i>	497
<i>Index</i>	

TECHNIQUE AND THEORY

INTRODUCTION

L. J. MEDUNA, M.D.*

Following the favorable results achieved with biological treatments of psychoses, I turned my attention to the possibility of finding biological treatments of psychoneurotic conditions. Psychoneurotic conditions had always been considered functional disturbances by all authorities in this field. The difference in opinion came only when the concept of functional disturbance had to be explained. Most of the time when we psychiatrists had talked of a functional disturbance, we had thought of the term in a negative way; that is, we had thought that there was no structural or material change underlying and causing the disturbance in the function.

For the first half of this century, with symbolic psychiatry prevailing, functional disturbance came to mean a disturbance in the function of the mind. What this mysterious "mind" is symbolic psychiatry cannot tell us, and organic psychiatry has just begun to lift the veil of mystery. "Mind" is neither a state nor a structured entity, but a function of the brain. Thus the definition, "Psychoneurosis is a disturbance of the mind," is meaningless, saying only that psychoneurosis is a functional disturbance of a function. If "mind" is a function of the brain, a disturbance in this function must be caused by a physical disturbance in the substance of the brain, probably in the biochemistry of the nerve cells. If this assumption be correct—the assumption *that mind is a function of the brain, wherefore, a disturbance in this function must be caused by a physical disturbance in the substance of the brain, probably in the biochemistry of the nerve cells*—then a biological means to correct the physical fault in the nerve cells causing the misfunction can be found. Having perused the avail-

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able scanty data and pondered over their possible significance, I assumed, secondly, that there is a possible topology of the psychoneurotic disturbance, inasmuch as a psychoneurotic patient seems to be oversensitive to the emotional aspects of meaningful situations. Therefore, I reasoned, the supposed disturbance ought to be looked for in those structures of the brain which deal with registering and evaluating emotional moieties of stimuli. Inasmuch as the structures engaged in this function are mostly, though not exclusively, subcortical structures, the assumed disturbance must be a disharmony between subcortical and cortical structures. A biological means, therefore, was to be found, a means which affects the two sets of structures in a manner quantitatively and possibly qualitatively, different from that in which they are being affected.

The particular kind of research in which I was engaged between 1941 and 1943 directed my attention to cyanides, as well as to carbon dioxide, as compounds which might be effective in producing a desirable change in the brain function. Rules of safety forced me to try first different concentrations of CO_2 .

The experiment on the whole was successful and, in 1947, I published my preliminary report upon CO_2 therapy, a report entitled "Pharmaco-Dynamic Treatment of Psychoneuroses." In this paper I reported the treatment of 6 psychotics, none of whom improved by the treatment, and of 9 obsessive-compulsive neuroses cases, none of whom improved by the treatment. In this paper, also, I reported the treatment of 23 patients whom I had divided into two groups: One group I called the conversion group. It included 3 cases of conversion hysteria, 7 of spastic colitis, 1 stutterer, and 1 tension case—in all, 12 patients, all of whom had improved by the inhalation-of- CO_2 treatment. The other group I designated as a group of personality maladjustments. It included 11 cases of marital difficulties, inferiority feelings, anxiety neuroses, emotional instability, chronic alcoholism, and feelings of frustration when there was no frustration. Eight of the eleven patients had improved.

In 1948, I published my second article on CO_2 therapy, this one entitled "Alterations of Neurotic Pattern by Use of CO_2 Inhalations." In this paper, I concluded that CO_2 inhalations

make easily manageable a great percentage of patients with conversion symptoms, such patients as those who create physical symptoms without underlying organic pathology. I reported, furthermore, that there were three other groups of patients susceptible to this treatment: those with faulty control of emergency reactions such as anxiety; those with symptoms or feelings of guilt or of inadequacy and irritability; and those with personality maladjustments manifested by antisocial and unconventional behavior and emotional instability. In this paper, I reported the treatment of 32 stutterers, with 16 greatly improved; 13 cases of spastic colitis, with 10 improved; 8 cases of anxiety neurosis, with 5 improved; 13 cases of feelings of inferiority, irritability and neurotic fatigue, with 8 improved; and, finally, 16 cases of alcoholism, homosexuality, and other character neurosis, with 8 improved. My group of obsessive-compulsive neurosis by that time had grown to 11 cases, none of which had improved by the CO₂ treatment.

The new treatment awakened interest among psychiatrists and general practitioners, who turned to me with a continuously increasing correspondence in which they asked a great number of questions as to the actual procedure used in the treatment, the necessary apparatus, the selection of patients, the contraindications, and many other questions which any conscientious doctor will raise before he can decide to use a new technique as revolutionary as the one I had advocated.

In 1950, I published my monograph entitled *Carbon Dioxide Therapy, a Neurophysiological Treatment of Nervous Disorders*, which book spread the interest in the new treatment to European and South American countries and increased my correspondence with doctors interested in the new treatment. By the end of 1951, I was in continuous correspondence, involving exchange of information, with about 100 psychiatrists in this country and about the same number abroad.

Among the psychiatrists interested in the new treatment was Dr. Robert E. Peck of New York, who, sensing the enormous burden which this correspondence had imposed upon me, recommended that those who actually were using the CO₂ either for treatment or for research should have an informal meeting for

discussion of matters pertaining to the treatment, at the time of the meeting of the American Psychiatric Association to be held in Atlantic City from May 10 to 16, 1952. By this time I had on my list as users of this new therapy the names and addresses of 90 doctors in various sections of the country. Following Dr. Peck's suggestion, I contacted all these doctors and asked them whether they would approve of Dr. Peck's idea of having such a meeting. Upon the enthusiastic acceptance of all the doctors whom I had contacted, we held the meeting, where we discussed such topics as the techniques of the treatment which I had introduced and the modifications of my technique which had been devised by Albert A. LaVerne, A. I. Jackman, and Zelig Selinger; the treatment of stutterers with CO_2 ; and propositions to standardize the CO_2 treatment. At this meeting it was felt that in order to facilitate further exchange of information about this new treatment some standing organization was desirable; and so those present elected the Committee on Carbon Dioxide Research, with Robert E. Peck as the chairman and with Harry Brick, Albert A. LaVerne, Robert B. McGraw, and myself as the other members. Discussions held at this meeting were later published in the *Diseases of the Nervous System*, Volume XIV, 1953; and, later, this journal published a pamphlet of 40 pages, entitled *Symposium on Carbon Dioxide Therapy*. In the introduction to this Symposium I wrote:

Since my preliminary report in 1947 on the use of carbon dioxide inhalations in the treatment of neurosis, this form of therapy has received wide acceptance. At the present time there are over 200 physicians in the United States using this method in hospitals and private office practice, and 40 or more others using it abroad. The following conditions have been found to benefit from CO_2 inhalations: character neurosis, including alcoholism, overt-passive homosexuality and other sexual perversions, chronic inferiority feelings, neurotic depression, anxiety neurosis, phobias, irritability and tension symptoms, stuttering, female frigidity, and some obscure skin reactions apparently related to neurodermatitis. Psychosomatic disorders such as asthma and skin allergies, spastic colitis, ulcerative colitis, chronic constipation, and paroxysmal tachycardia have been reported as having benefited or been cured by systematic carbon dioxide treatment.