

OLD AGE AND GENERAL PRACTICE

(A brief survey of five years' experience with amino acid-vitamin therapy)

Since the appearance of an article by the writer on the action of specific amino acids upon the effectiveness of the factors of the Vitamin B Complex five years have passed, so that a further evaluation of amino acid-vitamin therapy in general practice is now practical. (Reference: Jacobson, M. New York State Medical Journal, 43: 2079, 1945.) In 1925, the writer chose as the subject of his dissertation the effect of choline injection in cases of hypertension, and shortly thereafter proved both experimentally and clinically the decrease of cholesterol, as well as other changes in blood chemistry, under the influence of choline. (Reference: Jacobson, M. and Rothschild, F. Zeitschrift fuer Klinische Medizin, Bd. 103, N. 3/4, Verlag Julius Springer, Berlin) (Reference: Die Klinische Bedeutung des Cholins bei Hoehstem Blutdruck, Friedrich Wilhelm University, Berlin, 1924) It is therefore only logical that he should have a particular interest in the effects of these factors on the organisms of aging human beings. The addition of vitamins to the lipotropic factors was, in view of modern findings about the influence of vitamins on the chemistry of tissue, an natural, even inevitable followup.

The field of geriatrics is now a most important one in general practice, and the fact that the general practitioner ^{is} now ~~unusually~~ to a very large extent able to prevent premature incapacitation and degeneration, as well as to rehabilitate many already afflicted, may have a profound repercussion in our general economy. The extension of life-expectancy, and increasingly difficult

living conditions present an ever-increasing therapeutic challenge to the physician. Roughly speaking, the age groups needing particular attention are those under sixty, those between sixty and seventy-five, and those over seventy-five.

Mr. A.C. was a bank clerk. He was 54 when he came for treatment. He complained of increasing fatigue, frequent respiratory infections, palpitation, and insomnia. Diagnosis revealed no unexpected findings, but it is interesting to note that his general appearance was that of a man in his late sixties. Of especial pertinence is also the fact that he apparently remained unaffected by the use of the standard multiple vitamins which his organization supplied to its employees. Under the influence of regular use of the new medication (HYVANOL), his appetite increased rapidly, he developed regular sleeping habits, and the tendency to respiratory infections disappeared almost completely. ^{After} ~~thirteen~~ ^{months} of five years of observation, his working capacity had been completely restored. He now looks younger, and more alert.

Mr. E.W. came under observation at the age of 66, five years before the new medication was available. He was suffering from severe colds, osteo-arthritis of the neck and knee-joints, frequent skin allergies, and general fatigue. He had had nutritional habits, in particular an over-emphasis on carbohydrates in his diet. During the first five years of treatment, progress was slow, and marked by frequent relapses. With use of the new medication (HYVANOL), it became much easier for the patient to maintain a balanced diet, and soon his other symptoms

were markedly improved, in spite of his advanced age. Today, at the age of 76, he leads an active life, and carries on a full routine of professional activities as well as participating in active sports during his leisure time.

The third group includes patients in their nineties. The case of Mr. H.L. is typical. At the age of 86, he was well preserved, still active, but he suffered from bursitis, occasional gastro-intestinal disturbances, attacks of tachycardia, and an enlarged prostate. In spite of these ailments, the patient was able to state, after three months of the new treatment, that he felt more alert, that the frequency of palpitation had decreased, and that there was a general improvement. At the age of 89, his prostate was removed by electro-cautery in an emergency operation, and he made a rapid and uneventful recovery which showed recuperative powers usually found only in much younger men. In the past three years, he has shown remarkable further improvement. Now well over ninety, he drives a truck considerable distances and works actively as a carpenter. It must be added that, during the five years in which he was under treatment, he was conscientious about his medication and diet.

Therapy with these groups consisted in correcting their dietary habits, decreasing their fat intake, emphasizing proteins of animal and plant origin, limiting their carbohydrate intake, normalizing the body weight, and limiting the use of alcohol and tobacco. Medication invariably included three capsules daily of vitamins and amino acids (HYVAROL),

with at least two courses yearly of 12 injections of the same combination. Of course, additional specialized treatment, including hormone therapy, was used as indicated.

These three cases are representative of the three large groups, in their general makeup as well as in respect to their response to medication. Unless their ailments had been alleviated, they would inevitably have become distressing liabilities to their families and communities, instead of actually improving their potentialities of usefulness as they grew older. The knowledge which resulted in this therapy is now well established, and the investigation of degenerative processes is making rapid progress.

Therapeutic results with patients between the ages of 40 and 60 are not included in this brief report, but it goes almost without saying that a therapy which has proven its value in the treatment of degenerative processes can take an even more important place in preventing the appearance of these processes. In organisms which are not yet suffering from glandular imbalance, the protective or preventive value of this therapy is very great.

This brief survey is published in order to indicate what can be done with our present knowledge, and is submitted in the hope that it may encourage general practitioners to take full advantage of the new means now at their disposal.

OLD AGE AND GENERAL PRACTICE

(A Brief Survey of Five Years' Experience with Amino acid-vitamin Therapy.)

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Vitamin therapy and the use of lipotropic factors are becoming increasingly important, both in general practice and in the special field of the prevention of tissue degeneration in later life. The fact that the general practitioner is now able to a very large extent to prevent premature incapacitation and degeneration, as well as to rehabilitate many already afflicted, may have profound repercussions in our general economy. The gradual extension of the average life expectancy, and increasingly difficult living conditions, present a challenge to the general practitioner.

The interaction of vitamins and lipotropic factors had been the subject of intensive clinical investigation, when a preliminary report (*) on the subject was published five years ago. This report described the clinical results of the treatment of one thousand patients with the Vitamin B Complex combined with amino acids.

Before 1945, amino acids had been used only in hypoproteinemia, shock, postoperative conditions, and severe starvation. However, it had been found that vitamins in combination with proteins and amino acids catalyze many important body reactions (oxidations, reductions), play an important role in many enzymes containing vitamins, and facilitate many metabolic transformations as co-enzymes.

(*) Jacobson, M., New York State Medical Journal, 45: 2079, 1945.

The medication was applied in two different ways. In the first, 1 cc ampules containing thiamine, riboflavin, pyridoxine, nicotinamide, choline, glutamic acid, histidine, and methionine are used. (1)

In order to assure a stable saturated solution, we first used only a limited number of amino acids. Sodium glutamate was chosen as a source of glutamic acid, which is the only amino acid known to be metabolized by nerve tissue. Histidine is an important complement of nucleic acid and is an opponent of histamine. Methionine and choline are important for the maintenance of normal function of the liver and protection against damage of the liver (2). The B complex was chosen because of its functional importance for nerve metabolism. The importance of nicotinic acid and nicotinamide had been investigated by Selfridge (3), Nodine, Otto and Roberts. Choline, which is now considered a member of the B complex group, has a special importance for the mechanism of nerve activity in addition to its lipotropic effects. It enables the organism to absorb more completely the fat-soluble vitamins and improve the function of the liver.

(1) Solution (trade name Amvitol) and capsules (trade name Hyvanol) are manufactured by Walker Vitamin Products, Inc., Mount Vernon, N. Y.

(2) Jacobsohn, M.: Die Klinische Bedeutung des Cholins bei Erhoehetem

Blutdruck, Thesis, Berlin, 1925. Rothschild, F. and Jacobsohn, M.: Die Wirkung des Cholins auf die Blutzusammensetzung, Ztschr. F. klin Med. 105:417-419, 1927.

(3) Selfridge, G.: Present Status of Vitamins in Relation to Eighth Nerve

and Conduction Deafness, Arch. Otolaryng. 34:125-140 (July) 1941.

In the second form of treatment, in which the amino acids were administered in capsules (1), a wider variety of amino acids could be used: vitamin A, thiamine, riboflavin, pyridoxine, ascorbic acid, nicotinamide, calcium pantothenate, cysteine, tyrosine, choline, glutamic acid, liver concentrate, and dried yeast. Vitamin A, ascorbic acid, liver concentrate, and yeast were added, the latter two in order to furnish all the B complex factors. Vitamin A contains important regulatory factors for blood pressure and blood distribution. Tyrosine was added in combination with cysteine in order to increase the lipotropic effect of choline. Ascorbic Acid was added for its influence on the adrenal cortex and for its importance in the maintenance of blood pressure.

An average of ten to twelve injections was found necessary for successful treatment, although in most cases a marked improvement in the patient's condition was apparent after the first few injections. Oral medication was applied either separately or combined with the injections, and was continued after the injections were stopped.

Before 1945, this therapy had been applied largely to patients whose fat and protein intake had been sharply reduced by wartime rationing, and this fact imposed certain limitations on the earlier report. The present survey, however, reports therapeutic response under normal peacetime conditions. It is based on the treatment of circa five hundred patients in general practice, and contains therapeutic evaluations made with the means normally at the disposal of any general practitioner. It is the result of a general practitioner's experience of the clinical syndromes referred to, an experience of which a most important

factor is repeated and frequent contact with the patient himself over a long period of time. This factor is an advantage sometimes lacking in reports based largely or exclusively on laboratory findings. Objective evaluations were also made, of course: regular blood counts, blood pressure, urinalysis, cbc, weight control were routine in all cases, and where indicated additional tests were used, such as electro-cardiograms, basal metabolism tests, blood chemistry, especially npn and cholesterol.

Whereas in the earlier report, all age-groups were included, this survey is limited to patients over the age of forty. The involution which starts during middle age affects the body's ability to repair tissue, and necessarily the glandular, gastrointestinal, and cardio-vascular efficiency. Amino acid and vitamin therapy seems to be particularly suitable in preserving the liver function and the appetite, in increasing the efficiency of food metabolism, and in facilitating adequate tissue replacement.

Five years represents only about 8% of the present average life expectancy. Because of the acceleration of damage in aged patients, however, a five year period is often decisive with relation to life processes. It has often been pointed out that classification into age-groups does not afford a reliable basis for description and classification, since inheritance, constitution, and living habits can place any terminal condition at any age between 60 and 90. Therapeutic aims were prevention, stabilization, and rehabilitation.

The prevention or postponement of the acceleration of involutionary processes is a less conspicuous result of amino acid and vitamin therapy than is the stabilization of these processes once they are well under way, or a re-

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habilitation (partial or complete) of a patient with well-defined, serious syndromes. The results of prevention therapy are naturally no less valuable, both to the patient and to society. Amino acid and vitamin therapy, in combination with a properly balanced diet and sensible living habits, improves the utilization of food and strengthens resistance to infection and, of course, contributes noticeably to better general health. In all age-groups submitting to preventive therapy, appetite and bowel function improved, there was a significant decrease in susceptibility to infection, and every indication pointed to a better tonus of body tissue. It is significant that, in the wage-earning groups, there was a sharp decrease in absenteeism.

By "stabilization" is meant the optimum retardation of the involutory processes which take place at a more or less accelerated rate in patients over the age of forty. The most striking -- and highly significant -- general result of therapy in the groups where the aim was stabilization, was the rapid and marked improvement in professional performance. This is in no way surprising: typical complaints of these patients were exhaustion resulting from strain, delayed convalescence after infectious diseases and surgical interventions, and anemic conditions. In addition to the objective clinical improvements, almost immediate effects were noted in the relief from nervous tension, increase of ability of coordinated action and thinking, and relief from insomnia. These improvements resulted, of course, in improved mental stability, which was reflected in professional activities. Because of the greatly accelerated rate of involution after sixty, appreciation of results was easier in patients of an advanced age.

Rehabilitation has a particular sociological importance in old-age groups. Reduction of dependency in these groups is urgently needed, in view of the shortage of institutional facilities, the housing problem, and crowded hospital conditions. Ever since the impressive work done by Dr. Tom Spies in the use of vitamin therapy in rehabilitation, it has been quite evident that this therapy is entirely practicable. A large number of patients previously dependent on outside support were enabled to take care of themselves. Rehabilitation, of course, includes reconvalescent powers of overcoming disease, infection, postoperative conditions, etc. Important in this connection is also the fact that the death-rate in the groups treated was well below the average.

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