PRELIMINARY REPORT OF THE COMBINED EFFECTS OF VITAMIN - B COMPLEX WITH AMINO ACIDS.

by

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Recent research work in biological chemistry has demonstrated the ever-increasing importance of Amino Acids in human nutrition, as well as the relationship between them and the vitamins. Their role in the chemistry of enzymes and cellular metabolism suggested investigating their effect in vitamin utilization.

Some of the tissue proteins, either by conjunction with an active prosthetic group, or by some slight modification in structure, assume the role of enzymes[1] and catalyze many digestive and metabolic reactions.

The physiological relationships between vitamins and amino acids, their derivatives and aggregates, are either associative or indirect in character, for the most part. Protein-vitamin combinations catalyze many important oxidation-reductions, and the partnership of vitamin-containing enzymes (proteins and amino acids) and coenzymes facilitate many important metabolic transformations.

It has recently been shown that approximately half of the thiamin in milk is more or less firmly bound with protein[2]. The probable combination of serine with ethanolamine in the cephalin molecule is another point of contact between a vitamin (choline) and an amino acid[3].

The enzyme, coenzyme and vitamin relationships have been observed and reported by Northrop Bauman and Stare, Heidelberger and Smythe and many others.

The coenzymes, like the enzymes, are catalysts, but they are of lower molecular weight than proteins, and, unlike the proteins, they are heat stable and dialyzable. A number of them have been shown to be derived from vitamins, which constitute the active group in the molecule.[4]

It has been reported that vitamins enter into the metabolism of hemoglobin, riboflavin and pyridoxine in hemoglobin regeneration in dogs and rabbits, following blood withdrawal.[5 & 6]

Ascorbic acid also plays an important role in hemoglobin catabolism.[7]

Based on the above-mentioned findings, it was decided that a clinical investigation be instigated, using a combination of vitamins and specific amino acids - both by oral and by parenteral administration. The oral combination contains: Glutamic acid, for its role in the metabolism of the nerve tissue and its activation with the protolytic enzyme. Tyrosine and choline are incorporated for their lypotropic action. Cysteine is used to increase the choline effect which, in its turn, favors the absorption of the fat-soluble vitamins, A, D. and E.

Urea has been added to obtain the maximum effect from the amino acids as well as a more complete absorption of the water-soluble vitamins present - such as thiamin, riboflavin, niacinamide, calcium pantothenate, pyridoxine and ascorbic acid. Pyridoxine has shown

promise in chemical agranulositosis.

The following is a report of the clinical results. About 1000 cases were treated for various diseases. An average of 8 to 10 injections were found necessary for successful treatment, although in most cases, a marked improvement in the patient's condition was evidenced after the first few injections. Oral medication was applied either separately or combined with the injections, and then continued after the injections were stopped.

The first cases to be treated with this compound were suffering from exhaustion resulting from: physical strain, delayed convalescence after infectious diseases and surgical interventions, malnutrition and anemic conditions, including pregnancy anemia. 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, relief from insomnia and increased appetite. This demonstrated that the B-Complex + amino-acid produces a better systemic function than the B-Complex alone.

The problem of achieving an objective evaluation was solved by checking the subjective improvements simultaneously with a series of blood counts. The results of these blood counts invariably substantiated the subjective claims by showing an increase of hemoglobin and red blood cells, often after the first injection. In two years, the overwhelming majority of cases which were under constant treatment and observation showed that these improvements were permanent.

Employees of a department store, the office staff of a defense

factory, and the nursing personnel of a hospital participated in a series of tests. Statistics showed that many cases of subnormal blood counts experienced a rapid rise in hemoglobin and red blood cells after treatment. In addition, a marked improvement in their general health, as well as a sharp drop in absenteeism resulted.

Increased organic resistance was also accompanied by increased resistance to respiratory infections. Many improvements of clinical syndromes were observed and recorded in the early stages of this investigation. They have since become accepted tenets in vitamin research - their synergistic action shows betterment in lung tuberculosis and arthritis, fast recovery after operations and infectious diseases and resistance to shock.

Neuroses, organ neuroses and shock differ only in the matter of degree. It is generally recognized that organ neuroses, or the breakdown of a single organic function is one of the body's main defenses in preventing the breakdown of a personality - through extrinsic or intrinsic pressure.

Whether this breakdown manifests itself in the form of such disturbances as allergy, organ neuroses or shock will depend entirely on the forces involved. The transfer, however, will always occur on the roads of the central and peripheral nervous system. For this reason it was considered important to test the response of a nerve accessible to objective clinical observation.

This clinical research has been conducted at the Polyclinic Hospital (Hard of Hearing Department), Director, Dr. Kopetsky - by Dr. Jellinek and Dr. Hirschfield. (A detailed report will be pub-

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lished separately).

Patients with hearing disorders, as well as normal persons, showed either an immediate or a delayed increase in hearing acuity upon treatment with this compound. In normal persons, this effect appeared as hyperacousis. All cases were tested regularly with the audiometer. The improved hearing was evidenced, for the most part, in the higher octaves, which is of special significance. This fact suggests a direct influence of the compound on the nerve function, since it is the high frequency range which is first affected in damages to the acoustic nerve. This has been observed frequently in military personnel and industrial workers exposed to loud noises, as well as in persons whose hearing disorders started in early childhood.

C O N C L U S I O N

Synergistic actions are being increasingly applied in modern bio-chemistry and are herewith used for the first time in vitamin therapy.

Amino acids have been investigated, up to now, solely from a nutritional standpoint. Our approach, however, has been guided by their enzymatic and functional properties. The advantage is that each of the amino acids used in the preparation has in itself an important function in the human organism.

Therefore, it is apparent that the synergistic action claimed here not only involves the cell metabolism itself, but at the same time, benefits from an improved function of the central and peripheral nervous system.

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