Treatment with Zincum Metallicum CH5 in Patients with Liver Cirrhosis

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Zinc, an important enzymatic cofactor, is involved in many metabolic processes. Its deficiency might be due either to malabsorption or to excessive utilization. In the medical literature of the latest ten years, zinc was considered to play a role in the immune processes. This study was designed to determine the zinc and immunoglobulin levels in various diseases, i.e., in chronic progressive hepatitis, liver cirrhosis (LC), dermatitis, and bronchial asthma. This preliminary investigation was carried out in thirty patients with LC in whom serum zinc levels were assayed by atomic absorption spectrophotometry and the immunoglobulin levels were determined using the Mancini type simple radial immunodiffusion technique. All patients exhibited decreased serum zinc levels, the values ranging between 3.06 and 7.65 μmol/L as compared with 19.8 ± 1.5 μmol/L in the controls, with increased levels of immunoglobulins G and M.

After thirty days of treatment with Zincum metallicum CH5, (comparable in dilution to 10X) patients' clinical status improved. Their IgG and IgM as well as serum zinc resumed their normal values. This treatment should not be interrupted since in LC without permanent additional supply, the serum zinc returns rapidly to the initial deficit or even lower.

Introduction

Investigations over the last 10 years and the medical practice have shown that in a large number of cases disease is associated with changes in the concentration of certain metal ions in the tissues and fluids.[5, 6, 10]

The latest medical techniques have demonstrated that the deficit of one metal ion can decrease the enzymatic performance thus disturbing the normal metabolic processes.[10, 11]

Zinc, an important element and an enzymatic cofactor involved in many metabolic processes is essential in animal and plant life.[10] Moreover, in the medical literature of the last 10 years, zinc is considered to play an important part in immunity, especially in humoral mediated immunity.[1, 3, 4, 7]

The large amount of studies on this trace element is also due to the fact that it is indispensable in the activity of many zinc-dependent enzymes such as dehydrogenase, aldolase, peptidase, phosphatase, and others of which many have a hepatic localization.[10]

In the human organism, total zinc is represented by serum zinc and tissue zinc. Therefore a decrease of serum zinc does not necessarily mean a decrease of total zinc. In hepatic diseases it was observed that both serum and tissue zinc decrease.[9, 10]

The concentration of zinc in the liver, unlike that in other tissues, varies widely from one patient to another. Very low in case of deficiency, it increases rapidly in case of zinc supplementation.[10] But the assay of liver zinc is difficult from the technical point of view and its interpretations are confusing in the case of hepatobiliary diseases.

Based on the above physiopathologic data and considering the high concentration of zinc-dependent enzymes at the level of the liver, some authors tried an allopathic treatment with zinc sulfate or acetate in Wilson's disease or even in subjects with metabolic disturbances such as lipoproteinemia. The treatment presented many side effects such as hemolytic anemia and decrease of HDL cholesterol, the latter being considered a risk factor in myocardial infarction.[8]

In this paper considering the low serum zinc concentration in certain patients with hepatic diseases, we attempted a homeopathic zinc treatment in patients with liver cirrhosis.

Material and Method

The study was carried out in a group of 40 patients with hepatic diseases. The patients (27 males and 13 females) ranged in age between 44 and 65 years. A group of 20 normal controls (12 males and 8 females) of practically the same age range was studied in parallel.

After correct diagnosis made by clinical examination and laboratory assays of some hepatic parameters, determinations of serum zinc using atomic absorption spectrophotometry[2] and of immunoglobulins using Mancini's simple radial immunodiffusion[12] were performed in all study patients.

The patients were divided into two groups:

(1) Ten patients with chronic aggressive hepatitis (CAH), and

(2) Thirty patients with liver cirrhosis (LC)

Two patients from Group 2, the first with alcoholic cirrhosis and the other with a history of nonalcoholic cirrhosis with acute viral hepatitis type B (HBs antigen positive), were chosen for homeopathic treatment with Zincum metallicum CH5 2X10 granules per day. Both patients presented clinical signs of vascular and parenchymatous decompensation: a state of marked psycho-physical asthenia, anorexia, marked weight loss, hepatomegaly with increased consistency, muscular hypotony more evident of the upper members and of the thorax, and onset of ascitis, more marked of splenomegaly and anastomotic portocaval circulation (esophageal and gastric varices.) Ultrasonographic examination of the liver in both patients showed heterogeneous increase in the echogenicity of the liver parenchyma and the indentation of liver contour.

Groups	# of cases	γ-globulins	Albumins	Immunoglobulins G	Immunoglobulins A	Immunoglobulins M	Serum zinc (μmol/L)
Chronic aggressive hepatitis	10	28.55± 2.46	49.85±3.75	230.7± 2.37	242.85± 1.64	290.46± 3.25	12.68± 0.86
Decompensated liver cirrhosis	30	33.83±1.02	46.2±3.54	300.5± 2.68	245.32± 3.20	355.22± 2.45	5.26± 1.24
Normal controls	20	18.55±1.68	65.72±2.64	162.25± 1.05	240.34± 3.20	265.40± 2.32	17.85± 3.64
Normal values		14 - 22	55 - 75	99 - 250	63-320	70-330	8.4-19.8

Table 1: Level of serum zinc and of immunoglobulins as well as of some plasma proteins in patients with hepatic diseases compared to normal controls.

Results and Discussion

In the first group no alterations of serum zinc and of immunoglobulin concentration were observed.

The second group presented considerable decrease of zinc concentration with values ranging between 3.06 and 7.65 μmol/L as compared with 19.8 ± 1.5 μmol/L in the controls, along with the increase of immunoglobulins G and M.

Electrophoresis of plasma proteins both in the group of patients with chronic aggressive hepatitis and in the group with decompensated hepatic cirrhosis, showed deviations from the normal of the γ-globulins and albumin values, increase of the γ-level, and decrease of the albumin level more evident in the cirrhotic patients (Table 1).

In the two patients treated with Zincum metallicum CH5 it was observed after about 30 days of treatment that the clinical state was considerably improved and that IgG and IgM as well as serum zinc had resumed their normal values, concomitantly with the return to normal values of the γ-globulins and albumins (Table 2).

It should be mentioned that this treatment should not be interrupted since in LC, without additional permanent supply, serum zinc returns rapidly to the initial deficit or even lower.

Studies on zinc absorption in cirrhotic patients are contradictory. Using an oral zinc test dose, Sullivan *et al* [9,15] demonstrated that the increase of the plasma zinc level is less in patients with decompensated alcoholic cirrhosis while Milman *et al*,[13] found that after an oral zinc dose, zinc absorption increased in patients with compensated alcoholic cirrhosis. The authors consider that this increase appears as a mechanism of zinc deficiency compensation.

Chandra[3] in 1980 and 1985[4] and Bach[1] in 1981 demonstrated that zinc is an essential element for the development and function of the immune system.

The mechanisms of zinc immunity are open to consideration. Four hypotheses can be discussed:

1) Zinc is an essential factor for the activity of several enzymes – over 100 metalloenzymes cannot function without it. Thus zinc is essential for the function of thymidine kinase and DNA-dependent RNA polymerase whose involvement in the synthesis of nucleic acids might explain the effect of zinc on lymphoid cell proliferation.

2) Zinc is necessary for the activity of certain humoral mediators of immunity. This has been clearly demonstrated for thymic hormone but could also be valid for other factors such as lymphokines and the lymphocytic growth factors. It should be noted that zinc is a *sine qua non* constituent of the nerve growth factor.

3) Zinc might contribute to membrane stabilization acting at the cytoskeletal level. An effect on the membranes could explain the depression of phagocytosis, oxygen consumption, and bactericidal activity induced by zinc in phagocytic cells and the change of ConA surface receptor ability on lymphoid cells.

4) Finally zinc could act by its mitogenic effect as a polyclonal of the T (and eventually B cells) activator.

More than one of these hypotheses might be valid.

Conclusions

The study has demonstrated that treatment with Zincum metallicum CH5 has a favorable effect in patients with LC with vascular and parenchymatous compensation, and presents no side effects.

Moreover zinc administered in infinitesimal concentrations proved to have a favorable role in the activity of some humoral mediators of immunity such as immunoglobulins G and M.

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Subjects	Age	γ-globulins	Albumins	Immunoglobulins G	A	M	Serum zinc (μmol/L)
A. Before treament							
A.M.	60	30	38.6	368	198	510	7.65
G.I.	53	31	53.38	310	200	150	4.59
B. After 30 days of treament							
A.M.	60	25	47.9	230	250	180	16.8
G.I.	53	27	54.3	280	250	200	19.8
Normal controls		18.55± 1.68	65.72± 2.64	162.25± 1.05	240.34± 3.20	265.40± 2.32	17.85± 3.64

Table 2: Level of serum zinc and of immunoglobulins as well as changes of plasma proteins in two patients with liver cirrhosis with vascular decompensation before and after treatment with Zincum metallicum CH5.

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