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Importance of inorganic elements in biochemical and physiological processes is now well established at all levels of cellular complexity. Although more than sixty elements have been discovered in bacteria, fungi, higher plants, animals and man, few of them have been studied intensively. In humans, the major elements are carbon, calcium, chloride, hydrogen, iron, nitrogen, magnesium, oxygen, phosphorus, potassium, sodium and sulphur, while minor elements (trace elements or micronutrients) includes aluminium, cadmium, chromium, cobalt, copper, gallium, iodine, molybdenum, nickel, rubidium, selenium, silver, strontium, tin, titanium, vanadium, and zinc.

Both groups of elements are required for anatomical and physiological human growth and development.

Trace elements comprise metals in biological fluids at concentration below one microgram per gram of wet weight. Inspite of their scarcity, most of these are essential nutrients for human beings and are required by the body in minute amounts.

Copper and zinc have many biochemical roles and functions in the body as metalloenzymes, co-enzymes and as a component atoms of physiologically important proteins and hormones.
In the past few years there have been a variable explosion in the basic knowledge about trace element abnormalities in experimental animals as well as in human beings. This information explosion has now reached the stage where clinicians are going to be called upon more frequently to diagnose and treat trace element abnormalities.

The symptoms of deficiency of copper and zinc are now well documented. Three genetically determined disorders have been identified viz., Menkes kinky hair disease (Tricho-poliodystrophy), Wilson's disease (Hepatolenticular degeneration) and acrodermatitis entropathica. Besides these, there are many other clinical disorders in which their role is suspected and is being investigated.

First description of Iranian dwarfs presenting with growth retardation, hypogonadism, hepatosplenomegaly, geophagia, rough skin and anemia (Prasad et al, 1963) as a zinc deficient condition attracted the attention of clinicians for the study of zinc in various disease states.

For more than a century, infection induced alterations have been recognized in the metabolism or body content of many substances. With respect to the trace elements, recent reviews have emphasized the consistent occurrence during various infections of changes in same concentration and metabolic homeostasis of iron, zinc and copper.
Occasional changes may also occur in the metabolism of manganese, cobalt, gallium, iodine and chromium Vikbladh (1950) was the first to report that serum zinc concentrations were reduced below normal in patients with acute infectious illnesses. His observations have been amply confirmed in patients with bacterial, viral, rickettsial, spirochaetal, and parasitic infections (Beisel et al. 1977; Halstead and Smith 1970; Mcbean et al. 1972).

Unlike the declines in serum zinc and iron concentrations, serum copper values tend to increase in conjunction with proportionately higher values of the copper binding protein ceruloplasmin (Markowitz et al., 1955).

The progress of an infectious conditions is partly affected by the overall nutrition of the host, the duration of infection, the competence of liver cell functions and the type of therapy. Despite these variables the major trace elements responses are remarkably consistent and can be ascribed to well defined pathophysiological control mechanism. Many of the essential trace elements like copper, zinc, iron and selenium influence the function of the immune system (Chandra and Puri, 1985). Deficiencies of these trace elements can have a detrimental influence on the immune response. Deficiency of zinc produces thymic involution (Golden et al., 1977), decreased activity of T helper cells
and natural killer cell activity, reduced proliferation of lymphocytes in response to mitogens, and delayed cutaneous hypersensitivity (Chandra and Puri, 1985; Good et al., 1982; Golden et al., 1978). Even marginal copper deficiency can lead to an impaired humoral mediated response (Probeska and Lukasewycz, 1981; Sullivan and Ochs, 1981).

A product of phagocytizing cell leukocyte endogenous mediators (LEM) acts on the liver to stimulate an accelerated flux of zinc into hepatic cells and to cause an accelerated synthesis of ceruloplasmin. Other mechanisms that may influence trace elements metabolism include altered body balances, sequestration of the elements within tissues, changes in metal binding transport proteins, hormonal action and trace elements uptake by invading organisms.

Infectious diseases still heads the least responsible for morbidity and mortality in children. Hence the present study was undertaken to observe the influence of some common infectious illnesses, e.g. tuberculosis, enteric fever, pneumonia, pyogenic meningitis, hepatitis, malaria etc on the serum concentration of copper and zinc.