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CALCIUM AND VIRUS ACTIVATION

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Approximately 75% of infections are from viruses. Many types of viruses can be latent or dormant in host cells for months or even years. The most recognized for its latency, Herpes simplex, can be dormant in the skin and only manifest itself when an individual becomes stressed, run down, or exposed to excessive ultraviolet radiation.

The exact mechanism behind viral latency or viral replication is not totally known. However, a group of researchers explored this phenomenon in relation to the Epstein Barr virus, and their findings were reported in ***SCIENCE*** in 1986. Lymphoid cells were infected with the Epstein Barr genome. The Epstein Barr virus would either replicate slowly or remain dormant. Dormancy of the virus could be overcome a number of ways such as super- imposing a super virus or by introducing tumor promoting agents. The tumor promoting agents that activated the Epstein Barr virus also activated a cellular enzyme protein kinase C that is calcium dependent; therefore, they studied the effect of increased cellular calcium concentration on the lymphatic cells. They found that calcium modulation was of primary importance in activating the Epstein Barr genome. Other studies have been reported that implicate calcium in regulating the infection of human B-lymphocytes by Epstein Barr virus. When calcium entry into the cells was blocked, the Epstein Barr virus transformation was inhibited.

Viral Manifestation and Metabolic Types

As mentioned in previous newsletters, viruses tend to produce or induce para-sympathetic activity. According to our classification of nutrients, calcium is also a parasympathetic substance. Since slow metabolic types have elevated tissue calcium concentrations, they are more susceptible or predisposed to viral manifestation. We have had many confirmations of Epstein Barr and cytomegalovirus in slow metabolic types.

Viral Inducing Agents

It can be surmised that any substance that leads to increased tissue calcium concentrations can be a potential viral-inducing or viral-activating agent. Factors that increase tissue calcium retention include vitamin D, copper, estrogen, insulin, and parathyroid hormone.

This would also help to explain the anti-viral effects of some nutrients. Any factor that contributes to a reduction in tissue calcium concentrations should aid in viral resistance or activation of dormant viruses. Nutrients that reduce tissue calcium concentrations include vitamin C, vitamin A, pantothenic acid, niacin, vitamin B6, zinc, magnesium, iron and phosphorus.

Viruses as Endocrine Inhibitors

Generally speaking, viruses often produce symptoms of depression and extreme fatigue. The mechanism could be due to indirect endocrine suppression as a result of increased viral

activity. Calcium is known to suppress thyroid activity and secondarily adrenal activity. Therefore, chronic viral conditions could lead to thyroid and adrenal insufficiency. This could explain the "chronic fatigue syndrome" which is often associated with Epstein Barr and cytomegalovirus infections.

It is probably not coincidental that the incidence of "chronic fatigue syndrome" and Epstein Barr viral infection has risen simultaneously with the increased fervor of calcium supplementation for the prevention of osteoporosis.

Viruses and Diabetes

Since calcium and viruses are closely related, it is very possible that both may contribute to a number of health disturbances. As an example, insulin release also requires calcium. Increased tissue calcium retention is associated with increased insulin release, which is a common finding in adult onset diabetes. A virus such as Epstein Barr could be a strong contributing factor toward the development of some forms of diabetes.

In conclusion, this again shows that diet and nutritional supplements should be based upon individual requirements. As an example, a statement such as "a vegetarian diet is the healthiest for people" should be clarified. A vegetarian diet can be healthy for some, but not for others. The same is true for a diet containing large amounts of animal protein. A patient that has a slow Type 1 metabolic rate could be contributing to his susceptibility toward viral manifestation by consuming excessive amounts of high calcium foods such as dairy products, and high copper foods such as soy protein. On the other hand increasing high protein foods such as beef, fish, and fowl, which have a calcium lowering and metabolic raising effect, would reduce the patient's tendency toward viral complications.

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