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Headache and the Immune System

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The immune system exists to prevent invasion of the body by infection. Immune system cells constantly patrol the bloodstream and brain, seeking to kill foreign organisms such as bacteria. The immune system is a vastly complicated latticework of different parts, some of which directly attack foreign invaders, and others which regulate the attacking cells.

Recent research indicates that the immune system is involved in many illnesses, including headache. Pure immune diseases include lupus and rheumatoid arthritis. In these diseases, the immune system is overactive and the immune cells actually attack the person's own body. The regulation of the system is set incorrectly in these autoimmune diseases. Many other diseases, such as multiple sclerosis, involve an over activity in the immune system as well.

There is growing evidence that certain parts of the immune system, particularly cells called lymphocytes which play key roles in the immune response, are slightly different in people with migraine, cluster and (probably) tension headache. The same immunological differences that have been discovered in patients with multiple sclerosis have been found in headache patients (a relative decrease in the so-called lymphocyte suppressor cells). This similarity does not mean that headache sufferers develop multiple sclerosis or other immunological diseases more readily than others. When compared to people without headache, headache sufferers are not any more or less prone to suffer from infections, such as coughs or colds.

However, people who do have autoimmune diseases, such as lupus, also have an increased chance of suffering from headaches, particularly migraine. It appears that once people develop an autoimmune illness, the particles in the blood that are involved in the immune response also contribute to having headaches.

Many factors affect the immune system, such as stress, weather, hormones, food and aging. These factors are also involved in triggering migraine headaches. Stress exerts a major influence on the immune cells, and the result may help to explain the effects of stress on headache. There is a burgeoning field of medicine called psychoneuroimmunology, which investigates ties between factors such as stress and the response of the immune system in the brain. This field has shown that not only stress but also positive experiences, such as taking a vacation, probably affect the immune system. This relationship may, in turn, momentarily affect one's headache pattern.

Sunlight and UV rays have been shown to affect lymphocyte and suppressor cells, which may then influence headache. The hormone shifts during pregnancy and throughout the menstrual cycle also change the production of suppressor lymphocytes, which may change headache patterns. This discovery may help to explain the hormonal effects on headache. Lab studies show that certain foods also influence lymphocyte function; this finding could be important in headache as well.