When elevated ferritin may not be iron overload

HYPERFERRITINEMIA cataract syndrome

Sounds like: (hi-purr-ferret-in-ee-me-uh)

Are there high levels of ferritin in your blood? Does your doctor think you may have too much iron in your body? If the answer to either question is yes then you should ask your doctor a further question: Is the iron or transferrin saturation also high?

Ferritin is an indirect marker of iron and therefore high ferritin levels might represent iron overload. However, not all high ferritin is due to iron overload; this article describes one medical condition that is associated with very high ferritin but normal iron.

Several patients with high blood ferritin were referred to hemochromatosis specialists. Unlike hemochromatosis patients, blood tests showed both iron and transferrin saturation to be normal. Liver biopsy also showed normal iron. A breakthrough occurred when it was recognized that the patients with too much ferritin also had cataracts. During examination of family members, each person with high ferritin also had cataracts and conversely those with normal ferritin did not have cataracts. Thus a new disorder called hyperferritinemia cataract syndrome (HCS) was discovered.

HCS is a genetic disease that results in excess ferritin production (high ferritin in the blood is called hyperferritinemia) and cataracts. However, unlike ferritin that is high due to iron overload, ferritin is high in HCS with normal or even low iron. Ferritin levels in HCS can range from 500-2500 mg/L (same as 2500 ng/mL) relative to normal levels of less than 220 mg/L.

HCS was discovered in 1995 in France and Italy. More than 30 cases of HCS have been diagnosed throughout western Europe and the United States. At present there is no reason to believe that this disease will be limited to one ethnic group. It is impossible to say how common the disease is because it is simply too new and not enough doctors or patients are aware of HCS. It is possible to miss the diagnosis altogether because HCS patients are generally healthy and may not go to doctors. HCS is typically recognized in patients because of their high blood ferritin.

HCS is also known by the name hereditary hyperferritinemia cataract syndrome to emphasize that it is a heritable genetic disease. It is inherited in a dominant fashion meaning that an affected parent has a 50:50 chance of passing the disease on to each child. Men and women seem to be equally affected. HCS is caused by mutations in a gene that produces the ferritin light chain (L ferritin). All these mutations tend to disrupt a “switch”, which normally turns ferritin production off when iron is low. HCS patients make ferritin all the time whether iron is low or high. This ferritin is found in high levels in all parts of the body that have been examined, not just the blood. Genetic testing for mutations that cause HCS is available on a research only basis.

Cataracts are opaque spots that interfere with passage of light through the normally transparent lens of the eye. People become aware of cataracts when they experience glare, discomfort from bright lights or not seeing clearly. Patients with HCS have reported all these symptoms of cataract. Some people are surprised to learn that they have cataracts at an early age (before 50-60 years of age). Cataracts in both eyes at an early age (before 50-60 years of age) is a significant medical problem to be avoided is being mistakenly diagnosed as having iron overload. When treated for supposed iron overload by phlebotomy therapy (regular blood donation), HCS patients rapidly develop anemia, fatigue and breathlessness.

Discuss HCS with your doctor if the following things are true:

- High serum ferritin with normal or low serum iron and transferrin iron saturation percentage
- Cataracts in both eyes at an early age (before 50-60 years of age)
- Family members with both high ferritin and cataracts
- No other explanation for high ferritin (such as rheumatoid arthritis, cancer, chronic infection or iron overload)

There is no reason for a patient with HCS to have a liver biopsy.