Question 19 – January 11

Which of the following is true regarding the pathophysiology of hereditary hemochromatosis?

A. Hepcidin expression results in increased intestinal iron absorption.
B. Ferroportin is found in macrophages, hepatocytes, and the basolateral surface of enterocytes.
C. Mutations in the HFE gene increases hepcidin expression and down-regulates ferroportin levels.
D. Hepcidin expression is induced by excess iron or inflammation.

Answer: D

Of all the choices, only choice D is correct. Hepcidin is a 25–amino acid peptide that influences systemic iron status. It is considered to be the principal iron-regulatory hormone. Alteration in the regulation of hepcidin plays an important role in the pathogenesis of hemochromatosis. Hepcidin is expressed predominantly in hepatocytes and is secreted into the circulation. It binds to ferroportin, which is found in macrophages and on the basolateral surface of enteroctyes. When hepcidin binds to ferroportin, the ferroportin is internalized and degraded and iron export by these two cell types (macrophages and enterocytes) is inhibited. Hepcidin expression induced by excess iron or inflammation results in decreased intestinal iron absorption and diminished iron release from macrophages.

Reference:

Bacon BR et al. Diagnosis and Management of hemochromatosis: 2011 practice guideline by the American Association for the Study of Liver Diseases. Hepatology. 2011 Jul;54(1):328-43.