Serum Hyaluronic Acid in Clinical Practice

At present, the measurement of fasting serum hyaluronic acid (HA) has been shown to be the best means of clinical differentiation between liver cirrhosis and chronic hepatitis (1) and it is widely carried out in clinical practice. High levels of serum HA in chronic liver diseases are explained by capillarization of the hepatic sinusoidal wall (2) and the loss of the HA receptor of the sinusoidal endothelial cell (3) which is the main site of uptake and degradation of serum HA.

In addition, interferon (IFN) therapy for viral chronic hepatitis is, at present, one of the most important treatment in clinical practice in liver diseases. Poor response to IFN therapy has been recognized in advanced fibrosis and cirrhosis, and serum HA levels are one of the important predictive factors of IFN response in chronic liver diseases (4). The poor response of IFN in cirrhosis is probably due to the difficulty of IFN reaching to hepatocytes because of the capillarized sinusoidal wall (5).

Furthermore, the serum HA level is shown to be a good marker for prediction of the prognosis in liver surgery (6) and also in liver transplantation (7) because injuries and dysfunction of the hepatic sinusoidal endothelial cell are serious clinical complications in both liver surgery and liver transplantation.

Serum HA levels are also elevated after meals and especially after a high fat diet. Studies on the concentration of HA in the lymph vessel showed the highest level in the mesenteric lymph. The increased serum HA after a meal is best explained by the high mobility of the pool of HA in the gastrointestinal tissue through lymph vessels to the blood stream (8).

See also p 568.

In this issue of Internal Medicine, Idobe et al (9) presented the usefulness of the post-prandial serum HA concentration for assessment of the grading in necroinflammation and staging in fibrosis of patients with chronic hepatitis, as well as for the diagnosis of compensated liver cirrhosis. Diagnosis of chronic hepatitis was once made only by liver biopsy. However, recently the staging of fibrosis is well identified by combined assay of the serum fasting HA and type IV collagen, and activity of necroinflammation is best evaluated by the measurement of serum transaminase. Thus, at present, it does not seem necessary to evaluate the post-prandial serum HA (endogenous hyaluronan loading test). Thus this test would not be widely accepted in clinical practice.

However, the post-prandial HA measurement might be meaningful to evaluate certain gastrointestinal diseases such as

protein losing gastroenteropathy in which lymph vessels in the gastrointestinal tissue are involved. In addition, although serum HA is mainly metabolized in the hepatic sinusoidal endothelial cell, HA in the lymph is metabolized in lymph nodes (10). In fact, serum HA is increased in advanced malignant lymphoma, in stages III and IV. Decreased uptake and degradation of HA in the lymph is probably due to malignant transformation of lymphatic tissue (11).

Thus, it would be meaningful to evaluate the serum concentration of HA in different pathologic conditions and possibly obtain interesting findings to enlighten our understanding of the pathogenesis and to use in clinical practice.

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