sound sector scan of the right upper quadrant performed after 24 h of bed rest after biopsy. A biopsy was only performed if the patient’s prothrombin time was <3 s higher than the control value and if the platelet count exceeded 100,000/mm³. An adequate liver sample was secured in 149 of the 150 biopsies. All our patients except 4 (3 hepatomas, 1 metastatic adenocarcinoma) belonged to the hepatitis-cirrhosis group of Minuk et al. Fifty-three percent had liver cirrhosis on biopsy. Only 1 of our 150 patients developed a postbiopsy hematoma of ≥2 cm diameter, and it resolved completely by day 7.

As liver histology and duration of bed rest were not shown to influence the rate of complication after liver biopsy in the patients of Minuk et al. (and as the lower limit of the prothrombin time did not differ significantly), other factors may account for the striking differences in the incidence of hematomas between these two studies. We believe that the differences may be related to two elements. The first is the difference in the lower limit of the platelet count (100,000/mm³ versus 70,000/mm³ for Minuk et al.), although it is usually assumed that isolated thrombocytopenia may induce a defect of primary hemostasis with hemorrhagic risk only when the platelet count decreases below 50,000/mm³ (2). Thrombocytopenia in hepatic insufficiency is mainly related to a splenic sequestration with diminished survival and increased turnover (3). Apart from consumption coagulopathy and hyperfibrinolysis, three associated and unmentioned factors may increase the potential of the induced primary hemostasis risk: platelet dysfunctions with decreased ability of thromboxane B2 formation (4), anemia (5), and alteration of fibrin formation (6).

Alcohol by itself has also been shown to exert an inhibitory effect on platelet function independent of liver disease severity (7,8). Second, the larger needle diameter (1.6 mm versus 1.4 mm) may increase the potential of the induced primary hemostasis risk: platelet dysfunctions with decreased ability of thromboxane B2 formation (4), anemia (5), and alteration of fibrin formation (6).

Serious complications of transperitoneal liver biopsies are fortunately rare. The size of both studies is too small to evaluate the influence of the biopsy policy on their occurrence. However, we have shown that the incidence of hepatic hematomas may not be as great as reported by Minuk et al. and can be easily reduced if the threshold of platelet count is raised and needles with a smaller diameter are used. In patients with <100,000 platelets per milliliter, we suggest that sophisticated hemostasis tests must be performed or a transjugular route preferred.

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1. Minuk GY, Sutherland LR, Wiseman DA, MacDonald PR, Ding DL. Prospective study of the incidence of ultrasound-detected intrahepatic and subcapsular hematomas in patients randomized to 6 or 24 hours of bed rest after percutaneous liver biopsy. Gastroenterology 1987;92:290–3.

Anemia With Zinc Therapy

Dear Sir:

We read with interest the paper of Hoffman et al. (1) dealing with the development of a microcytic-hypochromic anemia in a patient treated with high doses of zinc sulfate. The anemia could be reversed by intravenous injection of cupric chloride. The authors speculate that anemia could be due to the hypocupremia and more importantly to the low level of a serum ceruloplasmin caused by zinc ingestion.

Although animal studies mentioned by the authors could support this hypothesis, other animal studies and experiences in patients suffering from Wilson’s disease suggest a different mechanism. Settlemire and Matrone (2) suggested that high levels of zinc impair incorporation of iron into or release from ferritin; another possibility is that zinc affects iron absorption and limits storage of iron as ferritin. High serum levels of zinc may shorten the life span of red blood cells, causing a faster turnover of iron. Furthermore, when a high-zinc diet was fed to pregnant female rats beginning at day 0 of fetus age to the 14th day of lactation, the young had low total body iron and iron concentration, whereas their livers contained significantly more iron than the livers of young from mothers that were given a diet with a normal zinc concentration (3). Coleman and Matrone (4) showed that rats fed a high-zinc diet had serum ferritin levels that reached only one-third of those found in rats fed a normal zinc diet.

We have treated a young patient with liver disease due to Wilson’s disease with 150 mg of zinc sulfate daily (5,6) for 3 yr without observing a hypochromic anemia. Under zinc therapy all pathologic laboratory findings normalized with the exception of ceruloplasmin serum level, which was normal when Wilson’s disease was diagnosed and became undetectable after zinc therapy. Our experience and the general finding of low ceruloplasmin serum level in many of the patients with Wilson’s disease speak against a major role of ceruloplasmin or copper in heme synthesis.

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3. Ketcheson MR, Barron GP, Cox DH. Relationship of maternal dietary zinc during gestation and lactation to development and...

Just in Case

Dear Sir:

In the June 1988 issue I eagerly read the report by Gines and coworkers (1) on a prospective trial in 105 patients undergoing therapeutic paracentesis. Later, when I tried to locate the article, I couldn’t find it. In vain, for 5 minutes, I searched the columns, first in the Liver section, then in the Alimentary Tract section. No luck. I couldn’t have just made it up. Where was it? Finally, I found it listed among the Case Reports. Case report? 105 patients? I stopped to count the number of human subjects in the other articles in that issue. In the Alimentary Tract section, 13 articles report on 3–100 subjects with a mean of 26. Four articles in the Liver section reported on a mean of 10 patients. What are the criteria used by Gastroenterology in determining whether or not an article is a Case Report? Just in Case.

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Reply. Thank you for reporting our error in regard to the article by Gines et al. We regret any inconvenience we may have caused in this obvious “case” of misclassification.

EDITORS