Serum lipids and lipoproteins were analyzed after an overnight fast, and following a fatty meal in 10 patients with cirrhosis, 5 with fatty liver, and 5 normal subjects. Cirrhotic patients were divided into two groups of five on the basis of serum lecithin-cholesterol acyltransferase activity. Fasting triglyceride levels were similar in all four groups. In all but cirrhotic patients with low lecithin-cholesterol acyltransferase activity, most fasting triglyceride was found in very low density lipoproteins; in the latter group, most of it was found in low density lipoproteins. We confirmed that patients with fatty liver have a higher serum triglyceride response to fat feeding than normal subjects, but we did not find higher levels in cirrhotic patients. Cirrhotic patients with "normal" lecithin-cholesterol acyltransferase activity had a normal triglyceride response to dietary fat. In patients with cirrhosis and low lecithin-cholesterol acyltransferase activity, the increase in triglyceride was less than in normal subjects. In this group, most of the extra triglyceride was carried in low density lipoprotein, and not in chylomicrons and very low density lipoprotein, as in the other groups.