Effects of fish oil and safflower oil emulsions on diet-inducedhep

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Abstract

This study was conducted to investigate the effects of fish oil and safflower oil emulsions intotal parenteral nutrition (TPN) solutions on diet-induced hepatic steatosis. Rats were divided into a control group (C, n = 6) and four experimental groups (A, B, S, F, n = 11 14). The control group was fed a chow diet whereas the experimental groups received a high fat (15%, w/w) diet containing 0.1% (w/w) cholesterol. Group A received the high fat diet for 4 weeks, and was killed at the end of the fourth week to ensure that hepatic steatosis had occured. Groups S and group F received TPN with safflower oil or fish oil emulsions, respectively, for 1 week following experimental diet feeding for 4 weeks. Group B was fed a limited amount of the high fat diet, without cholesterol, for 1 week following 4 weeks of experimental diet in order to maintain the same body weight and cholesterol intake as the TPN groups. Diet-induced hepatic steatosis was observed in the experimental groups. Fat deposition was reversed when the total caloric and cholesterol intake was reduced. Fish oil infusion ameliorated the severity of hepatic steatosis, whereas safflower oil had no effect on liver fat deposition. These results suggest that TPN with fish oil emulsions may be beneficial to patients with diet-induced hepatic steatosis.