Improved Lipid Lowering Activity of Fibrates On Combination With Fish Oil Ethyl Ester In Hypertriglyceridemic Hamsters.

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The knowledge that fibrate drugs decrease hypertriglyceridemia are of worldwide interesting, but worsen cholethiasis and possibility to cause gastric upset are not uncommon. Recently the therapeutic interest in utilization of fish oil ethyl esters (FO-E), rich in n-3 FAs especially EPA and DHA, as natural product with rare side effects are increasing. The main objectives of the present work were to assess and evaluate the effect of FO-E, bezafibrate (Bz), and fenofibrate (Fn) as well known drugs against hypertriglyceridemia on plasma and liver lipids as well as phospholipid (PL) fractions in liver microsomes. The second specific aim was undertaken to elucidate the effects of combining FO-E to either Bz or Fn on the different parameters, also to establish the role of FO-E and the two drugs in the mechanism of PL formation. Hypertriglyceridemia was induced experimentally in hamsters by three weeks feeding a high sucrose diet (HS). Then they were classified to six groups and were fed for two more weeks the HS diet and were concomitantly supplemented with any: (1) placebo (HS), (2) low dose of FO-E, (3) Bz, (4) Bz/FO-E, (5) Fn, and (6) Fn/FO-E. Our results showed that dietary ingestion with any of the supplementations except placebo decreased TAG, TC and VLDL-C and differently affected hepatic lipogenesis and glycerolipid synthesis. FO-E additions to any fibrate drug enhance and increase the hypotriglyceridemic effect of them. Changes in PC and PE percentages were found in liver microsomes in different groups. Unchanged PE percentage and increase PE percentage when FO-E was supplemented lonely or with each drug suggests that FO-E act through increase the CDP-choline pathway in PC synthesis, which means inhibition of gallstone formation by FO-E. Also SM was increased 3 folds on combining FO-E to Fn or Bz. These results support our hypothesis that FO-E addition to any fibrate drug would improve its therapeutic effect by decreasing, TAG, TC, VLDL-C and LDL-C as well as the atherogenic index and minimize their side effects.