Changes in lipid metabolism in acute diseases.

Introduction.

Abnormalities in lipid metabolism have been described in critically ill patients repeatedly. While triglycerides behave unpredictably, decrease of cholesterol levels is a typical finding. Further, low levels of cholesterol in critically ill patients have been found to be associated not only with poor prognosis but also increased mortality. Cholesterol is derived in two ways: via de novo synthesis and via dietary absorption. Both the modalities can be monitored by the determination of CH synthesis markers (lathosterol, squalene in blood plasma), and cholesterol absorption markers (sitosterol and campesterol in blood plasma)

Material and method:

In the first project sixty patients with acute internal disease were involved and their lipid profile was evaluated. Second and third projects have solved the same problem in the group of patients with active Cohnôs disease (n=24) and acute upper gastrointestinal bleeding (n=24). Serum concentrations of total, LDL and HDL cholesterol and triglycerides were measured in an enzymatic automated system. Non-cholesterol sterols (lathosterol, squalene, sitosterol, campesterol) were analysed using gas chromatography - mass spektrometry. The data were statistically analysed by the statistical software Sigma Stat 3,1.

Results:

Decrease of plasma concentrations of total, LDL and HDL cholesterol levels were detected. Triglycerides tracked changes in cholesterol levels. Lathosterol levels were reduced. Squalene is the other indicator of cholesterol synthesis, influenced by the lot of factors. Phytosterols repeatedly showed a downward trend. Performed correlations showed no significant relationship between changes in lipid metabolism and selected indicators (inflammation, nutrition, and metabolism).

Conclusion:

The results of our projects have shown that in patients with acute internal disease significant changes in lipid metabolism were found. Hypocholesterolemia has been described in all of our projects repeatedly. Moreover, both of cholesterol acquisition processes have been altered. Our results show that cholesterol is a major acute phase reactant and indicator of poor prognosis. Therefore we would like to apply these ideas to the areas outside of the typical critical ill medicine, primarily in the field of internal medicine.