ABSTRACTS OF THE 57TH SCIENTIFIC SESSIONS

ROLE OF ENDOTHELIAL CELLS AND THEIR PRODUCTS IN THE MODIFICATION OF LDL

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It has been suggested that modified LDL has atherogenic properties. When LDL was incubated in serum-free medium with human endothelial cells (EC), electrophoretic mobility and buoyant density increased concomitantly with a decrease in cholesterol and phospholipid content relative to protein content. When incubated in the presence of (35S)methionine, 35S-labeled proteins (48 KD and two bands > 100 KD) were found associated with these modified LDL particles after density gradient ultracentrifugation.
Since (1) different LDL preparations are modified to a different extent by one batch of EC, (2) at 37°C modification of LDL also proceeded in the absence of EC, although less pronounced, (3) addition of KCN, cycloheximide, A23187 or monensin did not influence LDL modification by EC, we suggest that LDL modification is enhanced rather than initiated by EC. The degree of LDL modification did not correlate with the amount of thiobarbituric acid reactive substances in LDL. HDL counteracts LDL modification and association of 35S-labeled proteins with LDL; serum of lipoprotein-depleted serum prevented them totally. Therefore, although EC products may bind to modified LDL particles in the arterial intima, it seems unlikely that EC play an important role in LDL modification in vivo.