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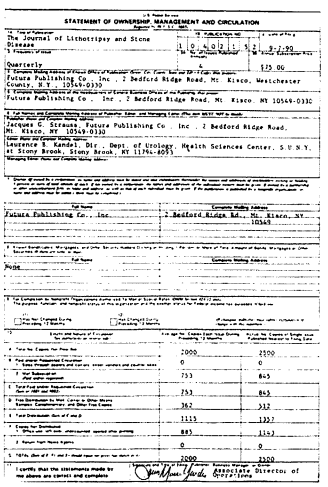

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Subject Index

BILE CONCENTRATION IS A KEY FACTOR FOR NUCLEATION OF CHOLESTEROL CRYSTALS AND CHOLESTEROL SATURATION INDEX IN GALLBLADDER BILE OF GALLSTONE PATIENTS.

Van Erpecum, K., van Berge Henegowen, G., Stoelwinder, B., et al.: Hepatology 11: 1–6, 1990.

The study of Van Erpecum et al. suggests that nucleation of cholesterol monohydrate crystals occurred more rapidly in concentrated than in dilute gallbladder biles of patients with cholesterol gallstones.

Furthermore, patients with solitary cholesterol stones revealed longer nucleation times in gallbladder bile than patients with multiple stones.

These findings point to an important role of bile concentration in the formation of cholesterol crystals and to a different pathogenesis of solitary and multiple cholesterol gallstone.

In agreement with several prior observations cholesterol crystals were observed in the majority (79%) of gallbladder biles from patients with cholesterol gallstones, but not in gallbladder biles from patients with pigment stones. However, in contrast to the results of the cholesterol nucleation time, the presence of crystals was not influenced by total lipid concentration or number of stones. Moreover, the presence of cholesterol crystals in bile did not have predictive value for a short nucleation time in filtered bile of the same patient.

Methodological problems may be one explanation for this difference. For ultrafiltration, 0.22 μm Millex filters were used, which may retain not only crystals but, additionally, cholesterol-phospholipid vesicles, particulary if these are fused and aggregated to larger complexes. Since vesicles play a key role in the formation of cholesterol crystals, removal of part of those vesicles by ultrafiltration could prolong cholesterol nucleation in a subsequent assay. It is therefore conceivable that the results obtained in the cholesterol nucleation studies of Van Erpecum may be affected by the use of ultrafiltration.

The finding of a negative correlation between total biliary lipids and the cholesterol saturation index is interesting. However, since no relation between total lipid concentration or cholesterol saturation index and the presence or absence of cholesterol crystals was seen, the value of both parameters in the prediction of bile lithogenicity is clearly limited.

Taken together, Van Erpecum's study shows that the presence of cholesterol crystals in gallbladder bile is of key importance in the pathogenesis of cholesterol gallstones, while the role of bile concentration ana the cholesterol saturation index in this process is less evident.

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