Thesis MU 28

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ABSTRACT

Liver microsomes from retinoate-cycled, stringently vitamin A - deficient rats (A^-) has been shown to have low activity in cytochrome P_{450} - mediated drug - metabolizing enzyme system. Attemps have been made in this study to find out whether vitamin A play a specific role in this system. Since the electron transport chain of cytochrome P_{450} - mediated drug hydroxylation of liver microsomes is closely linked to those of lipid peroxidation and fatty acid desaturation, any changes ooccur in the later two systems may affect the former. We found that in liver microsomes of A^- rat when the aminopyrine demethylase activity and cytochrome P_{450} level were approximately 50 % of those from A^+ rat, the degree of both NADPH-dependent and ascorbate-dependent lipid peroxidation were similar in both groups of the animals. No change in the NADPH-dependent lipid peroxidation was consistent with the results of no significant differences in NADPH-cyt. c (P_{450}) reductase activity and fatty acid composition of liver microsomes between A^- and A^+ rats reported in this study. Furthermore, the fatty acid desaturase activity was not significantly different between liver microsomes from both groups, in agreement with unalteration of cytochrome b_5 level previously reported. In addition, the phosphatidyl choline and phosphatidyl ethanolamine contents of liver microsomes from A^- and A^+ rats were similar. We, therefore, concluded that, the

decrease in cytochrome P_{450} -mediated drug metabolizing enzyme system of liver microsomes from vitamin A - deficient rat was not caused by changes in the activity of the two closely linked electron transfer systems or by general derangement of microsomal membrane. Vitamin A is somehow play a specific role in cytochrome P_{450} - mediated metabolizing enzyme system.