CONTRACTIONS TO PLATELETS IN AORTAS OF CONTROL AND CHOLESTEROL-FED RABBITS. T.J. Verheuren, M.J. Van Diest and A.G. Herman. Division of Pharmacology, University of Antwerp (UAnt), Universiteitsplein 1, B-2610 Wilrijk, Belgium.

Atherosclerotic aortas obtained from cholesterol-fed rabbits show a decreased responsiveness to norepinephrine, an increased responsiveness to low concentrations of serotonin and an unaltered responsiveness to prostaglandins. In vitro contractions induced by aggregating platelets are largely due to serotonin liberated during the aggregation. The present study was designed to compare the contractile responses to aggregating platelets in aortas obtained from control and cholesterol-fed rabbits. Segments of the aortic arch of the rabbits were then mounted in organ chambers for isometric tension recording.

In both the control and the atherosclerotic aortas increasing concentrations of platelets evoked contractions; the contractions obtained with the lower concentrations of platelets were significantly greater in the atherosclerotic tissues. The maximal responses and the ED50-values were comparable in both groups of blood vessels. No significant differences were observed when platelets obtained from control or hypercholesterolemic rabbits were compared. In the control and the atherosclerotic aortas the serotonin receptor antagonist ketanserin at 5 x 10^-8M did not significantly affect the contractions to platelets obtained from either control or cholesterol-fed rabbits. The serotonin receptor antagonist ketanserin at 5 x 10^-8M nearly abolished the responses to platelets in both groups of aortas.

These experiments illustrate that (1) the contractions induced by rabbit platelets in control and atherosclerotic aortas are mediated by serotonin and (2) the responses to platelets, as those to serotonin, are augmented in the atherosclerotic preparations.

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