Time

14.30 **1014** INCREASED PROSTACYCLIN GENERATION IN MINIPIG VASCULAR TISSUE AFTER ATHEROGENIC DIET

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The effect of an atherogenic diet on PGI_2-generation was studied in 24 miniature pigs fed a diet consisting of 25.6% lard, 2.65% peanut oil, 2.65% cholesterol and 69.1% commercial minipig chow. In all the minipigs the abdominal aortic endothelium was detached with an arterial embolectomy catheter. Prostacyclin generation in the thoracic and abdominal aorta and pulmonary artery was assessed in terms of inhibition of platelet aggregation compared with the effect of a synthetic standard. Blood and tissue lipid levels and the morphology of the arteries and different organs were examined. PGI_2-formation was greater in the pulmonary artery, followed by thoracic and abdominal aorta. Balloon catheterization caused a 50% decrease in PGI_2-synthesis. PGI_2-production increased with ascending blood and tissue lipid levels; at the highest serum cholesterol level (1147 mg%) saturation of PGI_2-release by the thoracic aortic segment was observed. In control animals (4) PGI_2-generation in thoracic and abdominal aortic segments was 35% lower in the male than in the female pigs.

14.45 **1015** β THROMBOGLOBULIN, PLATELET FACTOR 4 AND MALONDIALDEHYDE FORMATION IN HYPERLIPIDEMIC PATIENTS.

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Thromboembolic complications occur frequently in the hyperlipidemic patients. Platelets play an important role in the pathogenesis of such thrombi. Malondialdehyde (MDA) formation, which could indicate prostaglandin synthetase activity (PGSA), was measured in washed platelets stimulated by arachidonic acid in 34 hyperlipidemic (H) type II, IV and V patients. Results were compared to age and sex matched healthy subjects and correlated to plasma β-thromboglobulin (βTG) and to 5 fractions of serum lipid levels. In 10 of the patients platelet factor 4 (PF4) level was also measured by radio-immunoassay. MDA (mean 10.92 nM/10^8 platelets) βTG (mean 115.7 ng/ml and PF4 (mean 65.4 µg/ml) were all significantly elevated in the patients ($p < 0.0005$) exceeding the upper range of control subject in 60% of them. There was a significant correlation between βTG and PF4 as well as between βTG and serum total triglyceride (TG) and VLDL-TG levels. No correlation was found between MDA and βTG or MDA and serum lipids. These results indicate that in-vivo platelet activation and "release reaction" and apparently PGSA are increased in hyperlipidemic patients, the former occurring not only through the prostaglandin pathway. The abnormal in-vivo platelet activation, presumably induced by the high lipid levels - mostly VLDL-TG, may reflect a pre-thrombotic state.

15.00 **1016** EVIDENCE THAT A FAT-RICH, THROMBOGENIC DIET ENHANCES FACTOR X ACTIVATING ACTIVITY OF RAT PLATELETS.

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The mechanism by which certain fat-rich diets are able to induce a marked thrombotic tendency in rats is uncertain. Several abnormalities of platelet function have been reported including increased platelet adhesiveness, enhanced platelet aggregability and increased platelet factor 3 activity. We have studied a recently described platelet coagulant activity (factor X activating activity) in rats fed a fat-rich, thrombogenic diet for 1,2 and 7 weeks as compared to rats fed normal laboratory chow. Whatever the duration of the special feeding period, a highly significant shortening of the special clotting time, devised for measuring this activity, was observed. When platelet coagulant activity of individual "fat-fed" rats was quantitated by reference to that of the respective randomly paired control animal, a 2-5 fold increase was found as early as after one week of dietary treatment. Partial thromboplastin time, thrombin time and soluble fibrin monomer complexes did not differ in control and treated animals. It seems that platelet coagulant activity, as measured in our test system, is one of the first laboratory parameters to be modified by fat-rich diets. These findings may be relevant to an understanding of the role of platelet coagulant activities other than platelet factor 3 in thrombotic phenomena.

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