0616 08:45 h

EFFECT OF PROSTAGLANDIN E₂ ON "INFLAMMATORY" OR "ISCHEMIC" SKIN ULCER IN THE PATIENTS WITH PERIPHERAL VASCULAR DISEASE. H. Tofuji, K. Uehara, H. Sawada, T. Tsuchiya, S. Sakai, H. Funayama, Y. Shiokawa. Department of Internal Medicine, Juntendo University School of Medicine, Tokyo 113 JAPAN.

Clinical, physiological and biochemical studies of PG E₂ treatment were done, in a series of 7 collagen disease patients with "inflammatory" skin ulcer and 5 diabetics with ischemic ulcers or apical gangrene of toes. Intravenous infusions of prostaglandin (PG) E₂ was given continuously in the dose of 1ng/kg/min for 72 hours. Blood samples were collected from cubital vein, before, during, right after, and at 7 days after PG E₂ therapy. Platelet aggreagation induced by ADP, collagen and epinephrine were evaluated by light transmittance. Platelet FpA (Immuno-reactive PG E₂ like material) levels were measured by radioimmunoassay. Essential fatty acid compositions of plasma, platelet, and red cell were analyzed by gas chromatography.

Results were as follows: 1. In all cases, complete or almost complete healing of skin ulcers or abolition of the pain was noted. 2. Skin temperature was elevated during PG E₂ treatment. 3. The platelet basal PG E₂ levels were significantly decreased by PG E₂ treatment (P<0.025). 4. The plasma and platelet linoleic acid levels were significantly higher than before the treatment (Plasma: P<0.05, platelet: P<0.025). 5. In most cases, platelet aggregation was increased during PG E₂ treatment than before.

Conclusion: Dramatic therapeutic effects of PG E₂ were observed on "inflammatory" or "ischemic" skin ulcer in patients with peripheral vascular disease. This effect might be resulted from improvement of PG metabolism abnormality in the platelet etc. Platelet aggregation in vitro may dissociate from the results in vivo.

0617 09:00 h

SULFINPYRAZONE IMPROVES MYOCARDIAL BLOOD FLOW AND INHIBITS PLATELET RELEASE DURING EXERCISE IN CORONARY DISEASE. P. Steele, F. Gold, J. Sklar, Department of Medicine, Denver Veterans Administration Medical Center, Denver, CO

Exercise (EX) is associated with activation of the platelet release reaction (REL), and REL during EX is exaggerated in men with coronary disease (CAD). Sulfinpyrazone (SFP) and aspirin (ASA) inhibit REL at rest and during EX. Sixteen men with CAD underwent treadmill EX with measurement of e-thromboglobulin (E₆-Th) and thromboxane B₂ (TBX) at rest and just after angina-limited EX. Eight men were randomly assigned to SFP (200 mg po QID) and eight to ASA (300 mg po BID) and EX repeated 7 days later. Placebo were given for 7 days and EX repeated (double blind, cross-over). Myocardial blood flow distribution (MBFD) was measured during EX(²⁰₃H)Thallium; 7-pinhole tomographic image acquisition and analysis). E-Th was elevated at rest (40±5 ng/ml; N=16; AVE±SEM; normal 18±2 ng/ml; N=22; P<0.001) and during EX (120±8 ng/ml; normal 20±4 ng/ml; P<0.001). TBX was not detected in venous blood at rest, but was present in 14 men during EX (15±3 pg/ml; N=16; normal 0 pg/ml; N=22). SFP decreased E-Th at rest (control 33±4 ng/ml; SFP 17±3 ng/ml; N=8; P<0.001) and during EX (control 125±14 ng/ml; SFP 46±7 ng/ml; N=8; P<0.001). ASA also decreased E-Th at rest (control 46±3 ng/ml; ASA 28±7 ng/ml; N=8; P<0.001) and during EX (control 114±13 ng/ml; ASA 44±7 ng/ml; P<0.001). Neither SFP nor ASA altered heart rate, systolic blood pressure or ST segment depression during EX. Results suggest that REL is activated by EX in men with CAD and that SFP and ASA inhibit REL with EX, including TBX. SFP has a greater effect on MBFD during EX than ASA.

0618 09:15 h

HEMATHROMBOGLOBULIN AND FIBRINOPEPTIDE A IN EXERCISE-INDUCED MYOCARDIAL ISCHEMIA. A.G.G.Turpe, A.C. de Boer, B.J. Sealey, R. Butt, E. Genton, Department of Medicine, McMaster University, Hamilton, Ontario, Canada.

To investigate the role of platelet release and thrombin activity in exercise-induced myocardial ischemia, plasma thromboglobulin (TBG) (mean ± SD, ng/ml) and plasma fibrinopeptide A (FpA) (pmol/ml) were measured before and after treadmill testing using the Bruce Protocol in normal subjects and 77 patients with suspected coronary artery disease (CAD). In normals, there was no difference between pre- and post-exercise BTG (31 ± 9 v 27 ± 9) nor FpA (1.0 ± 0.8 v 0.8 ± 1.3). In 31 patients with a negative exercise test there was no difference in mean pre and post-exercise BTG con (36 ± 14 v 43 ± 33; P>0.01), but there was an increase in mean FpA (1.5 ± 1.2 v 3.0 ± 3.4; P<0.001). Ten of the patients with negative exercise tests had documented CAD by coronary angiography and their FpA rose from 2.1 ± 1.8 to 4.3 ± 4.4 (P<0.05) after treadmill testing; 6 had a significant increase in FpA and 4 in BTG. In 46 patients with an abnormal exercise test (>1 mm ST-segment depression there was an increase in mean BTG post-exercise (pre 42 ± 17 v post 60 ± 60; P<0.005) and the increase was significant in 33%. The increase was more common in those patients who developed chest pain during the test. Plasma FpA increased from 1.6 ± 1.2 to 4.1 ± 4.6 in the patients with a positive test (P<0.005) with an increase in 33% of patients. These data indicate that exercise-induced myocardial ischemia is associated with platelet release and thrombin activity in patients with CAD. Increase in BTG occurred mainly in patients with a positive test who developed chest pain. The FpA in patients with CAD increased in patients with either positive or negative treadmill tests. Increase in FpA post-exercise appears to be a more sensitive indicator of CAD than BTG.

0619 09:45 h

COHORT LABELLING OF RAT PLATELETS WITH ⁷⁵S- METHIONINE J.F. Martin, Prudence Francis, D.G. Penington, Melbourne University Department of Medicine, St. Vincent's Hospital, Melbourne, Australia

The origin of platelet density heterogeneity is in dispute. We examined whether this heterogeneity is age-related or whether platelets of differing density are initially produced from megakaryocytes. ⁷⁵S-methionine labels megakaryocyte protein and hence platelets produced in vivo. Density was measured by light transmittance. Platelet: p<0.025). 5. In most cases, platelet aggregation was increased during PG E₂ treatment than before.

Conclusion: Dramatic therapeutic effects of PG E₂ were observed on "inflammatory" or "ischemic" skin ulcer in patients with peripheral vascular disease. This effect might be resulted from improvement of PG metabolism abnormality in the platelet etc. Platelet aggregation in vitro may dissociate from the results in vivo.

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