Friday, July 17, 1981

Poster Presentations

Platelets – XXV

Platelet Survival

11:00–12:30 h

Simcoe Room Boards 149–160

0905

SERIAL PLATELET SURVIVAL HALF-LIFE (PS) IN PERIPHERAL VASCULAR DISEASE AND DIABETES MELLITUS. F.J. Kazmier, V. Fuster, J.H. Chesebro, W.M. O'Fallon, and P.J. Palumbo, Mayo Clinic, Mayo Foundation, Rochester, Minnesota.

Platelets are believed to play an important role in the pathogenesis of atherosclerosis and thrombotic occlusive arterial disease. As part of a prospective study of peripheral occlusive arterial disease in diabetes mellitus, platelet survival half-life (PS) was determined in years 1 and 2 from the disappearance pattern of ^{51}Cr-labeled platelets obtained by measuring radioactivity in serial samples over 8 days in four groups of patients age 50-70. Using computer assisted least-square analysis, a single exponent is fitted to the data and half-life determined.

Groups included (1) normal subjects (NC); (2) subjects with clinical and objective evidence (transcutaneous doppler ultrasound and treadmill exercise) of peripheral arterial occlusive disease (ASO); (3) subjects with diabetes mellitus without ASO (DM); (4) subjects with both diabetes mellitus and ASO (DM+ASO). 112 subjects were tested in year 1 and 75 of these were available for retesting in year 2.

In year 1, there is a difference in the distribution of platelet survival (PS) for the four groups (p=.002). PS is significantly short in groups ASO and DM+ASO compared with controls (NC).

	NC	ASO	DM	DM+ASO
<92 hrs	7	18	13	21
>92 hrs	18	12	17	6
	25	30	30	27
%<92 hrs	28%	60%	43%	78%

Year 2 values for PS (75 subjects) were compared to year 1. Using the t test on mean differences PS for each group was not significantly different year 2 vs year 1; mean percent differences year 2 vs year 1 were 1.2% (NC), 0.2% (ASO), 3.2% (DM), and -9.3% (9.3% lower than year 1 for DM+ASO).

Platelet survival half-life (PS) does distinguish population groups and is reproducible when repeated.

0906

SYSTEMIC THROMBOEMBOLI IN MITRAL STARR-EDWARDS PROSTHESIS: A LONG-TERM FOLLOWUP (10-19 YEARS). V. Fuster, J.H. Chesebro. Mayo Clinic, Rochester, Minnesota, U.S.A.

The study comprised 170 consecutive patients (pts) seen at Mayo Clinic between 1962 and 1970 who underwent mitral valve replacement with Starr-Edwards prosthesis (model 6000 in 35% of pts, model 6120 in 65% of pts) because of significant chronic mitral incompetence (functional Class III-IV). All patients were on oral anticoagulants and were followed until January 1980 with a followup of 10 to 19 years (yrs) (median 15 yrs). We analyzed (1) the cumulative incidence of systemic emboli, their location and whether or not they left residual deficit; and (2) possible risk factors that might have been predictive, including in the analysis: age, sex, functional class, presence or absence of atrial fibrillation, degree of cardiomegaly, type of prosthesis and degree of anticoagulation.

At 12 yrs of followup, 48% of pts had at least one episode of emboli (among these pts, 12% had two episodes); the rate of emboli was maximal within 1 yr postoperatively but persisted over the total followup at a rate of about 3% per yr. Of all emboli, 94% occurred in the cerebral circulation and 66% left neurological deficit. Regarding predictive factors, the incidence of emboli was slightly higher in pts with the prosthesis model 6000 ($p<0.05$) and in pts considered to be poorly anticoagulated ($p<0.05$).

This unique long-term followup study on pts with mitral Starr-Edwards prosthesis reveals that systemic emboli is a persistent and significant problem. Preliminary data indicates that the addition of a platelet inhibitor to the oral anticoagulant may be beneficial.