Supplementary Abstracts

Vascular Disease and Platelets

1385

VASCULAR CHANGES DURING RESOLUTION OF PULMONARY ARTERIAL HYPERTENSION. Clarence A. Rawlings, James C. Keith, and Robert G. Schaub. The University of Georgia, Athens, GA and the University of Tennessee, Knoxville, TN.

Pulmonary hypertension associated with myointimal proliferation is produced by low grade, sustained damage to the arterial surfaces by Dirofilaria immitis (DI) infection in dogs. This study correlated changes during and after infection in pulmonary vascular hemodynamics, arteriograms, and morphology (scanning electron microscopy (SEM) and light microscopy (LM)). Seven beagles were infected with 50 infective DI larvae. Twelve months after infection, mild pulmonary hypertension (mean pulmonary arterial pressure (MPAP) during normoxia was 26.4 mmHg versus 16.0 pre-infection, during isoproterenol infusion was 37.6 vs. 14.3 pre-infection and reduction of pulmonary vascular resistance was 31.1% versus 47.2% pre-infection) was present. Angiograms at this time revealed dilation and tortuosities of the main and intralobar pulmonary arteries. SEM revealed large villus proliferations, disoriented cell axis, and pore formation. The villi projected (LM) into the vessel lumen and consisted of intimal thickening with multiplying smooth muscle cells and collagen.

Seven months after treatment to eliminate the DI as a cause of the arterial trauma, pulmonary hypertension was resolved (MPAP of 19.8 during normoxia, 17.7 during isoproterenol infusion, and reduction of pulmonary vascular resistance of 45.2%). The arteriographic changes of dilation, aneurysms, and tortuosities were decreased, especially in the main and lobar arteries. LM revealed that larger arteries, which had greater arteriographic resolution, had relatively more elastic tissue and that the intralobar arteries had more collagen. SEM revealed that the villus proliferations were markedly reduced in numbers and sizes. This study characterized a reduction of hypertension as related to resolution of the muscular hypertrophy of arteries and related arteriographic changes to the type of connective tissue being produced by smooth muscle cells in the arterial wall.

1386

TREATMENT OF IMPAIRED RHEOLOGIC CONDITIONS WITH PENTOXIFYLLINE (PO) IN PATIENTS WITH CEREBROVASCULAR DISEASE (CVD). H. Lechner, E. Ott, Clinic for Neurology and Psychiatry, University of Graz, Austria.

Investigations have been performed in 55 patients (25 females, 30 males) with a mean age of 61 years presenting focal neurological deficit due to acute or subacute CVD. Impairment of hemorheologic conditions has been diagnosed in more than one third of the patients using blood viscosity, hematocrits, fibrinogen and spontaneous as well as induced platelet aggregation (PA) as indicators. Blood viscosity has been determined by a cone – plate viscometer at four different shear rates and PA has been investigated using a modification of BORH'S method.

Impaired hemorheologic conditions have been treated with Pentoxifylline (PO) during a period of 3 weeks administering 4.2 – 17.1 mg/kg body weight intravenously and/or by mouth. Thus, blood viscosity decreased significantly with a maximum decrease at low shear rates (11 sec⁻¹) while hematocrits did not change. Likewise, mean fibrinogen levels decreased significantly during PO medication. Epinephrine as well as ADP induced PA have been successfully inhibited by PO. However, drug induced changes of rheologic parameters were more pronounced when 17 mg/kg body weight were administered.

It was concluded that PO is an effective drug for treatment of impaired rheologic conditions in patients with CVD.