FREE COMMUNICATIONS
09.00 – 10.30

Blood Components and the Vessel Wall

Queen Elizabeth Hall

Time

09.00 **0634** PLATELET-VESSEL WALL INTERACTIONS IN VON WILLEBRAND'S DISEASE

M.I. Barnhart*, R.M. Wilkins and J.M. Lusher, Departments of Physiology and Pediatrics, Wayne State University School of Medicine, Detroit, Michigan, U.S.A.

Adhesion of von Willebrand (vW) platelets (P) from 12 patients was tested in an ex vivo human umbilical vein perfusion model. Experiments (42) employed twelve umbilical cords from Caesarian sections and P (fetal, adult and vW) either washed (with apyrase protection) or used as P rich plasma or whole blood. FVIII antigen (FVIII:ag), Ristocetin cofactor (RCF) and FVIII procoagulant were measured in blood and umbilical vein effluents. Either hypoxia or epinephrine pretreatment of vein released FVIII:ag and RCF into perfusates. Binding of a marker (latex linked anti-human FVIII:ag) demonstrated that FVIII:ag became exposed at endothelial surfaces. Scanning electron microscopy displayed vWP-vessel interactions. Although vWP adhered to injured vein wall, both qualitative and quantitative differences existed which related to the plasma RCF level. The vWP were less adhesive to exposed subendothelium than were control fetal or adult P. The vWP had less surface activity, spreading and fewer pseudopods. Vein pretreatment with FVIII antibody partly blocked P adhesion. Perfusion of cryoprecipitate with vWP improved their adhesion, activation and aggregation. These observations further establish the model's utility and validity for studies aimed at discovering the nature and extent of the vascular defect in various P disorders. The model seems especially well suited for testing impacts of P and/or endothelial cell reactive agents on platelet-vessel wall interactions.

09.15 **0635** VITAL MICROSKOPIC OBSERVATION OF FLUORESCENT LABELLED PLATELETS

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Platelets from platelet rich plasma (PRP) of Wistar rats were labelled by incubation with fluoroisothiocyanate (FITC) in Ringer-citrate-dextrose solution. Labelled platelets were reinjected into a tail vein of a rat previously prepared for vital-microscopic observation of the mesenteric vasculature. Using a low-level-light camera, labelled platelets could be observed by a fluorescence technique as distinct luminescent particles moving with the blood stream, and their rheological behaviour could be observed.

Results: Platelets moved with different velocities in the same vessel. Single platelets stuck temporarily to the vessel wall but no aggregation was observed. Extensive sticking has been observed in places of leukocyte-rolling. Using the described method it should be possible to alter platelets *in vitro* and to observe their behaviour *in vivo* after reinjection.

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