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GLANZMANN'S THROMBASTHENIA IN PREGNANCY: CLINICAL FEATURES AND PLATELET SEROLOGY. M.Picó, A. Ribera, C. Martin, J. Zuazu and J.Monasterio. Hematology Service. Hospital Vall d'Hebron. Barcelona. Spain.

A 24-year-old woman with a diagnosis of Glanzmann's Thrombasthenia (GT) type I (confirmed in our Hemostasis Section by sodium dodecyl sulphate-polyacrylamide gel electrophoresis) and with a history of several transfusions, was seen in our Service since the second month of her first pregnancy. In the first visit a strong anti-Rh(D) antibody was found in her serum. In 28th week an ammiocentesis was done. Seventy two hours later, she was hospitalized because of disminution of foetal movements. Then, a platelet-allo-antibody, IgG+IgM type (title IgG 1/512,IgM 1/2) was detected in her serum by immunofluorescence test, as well as an anti-HLA antibody (by lymphocytotoxicity test) which reacted with her husband lymphocites.
The platelet antibody wasn't EDTA or Paraformaldehide (PFA) dependent and reacted with all normal platelets of a panel of known platelet phenotypes and, also although significantly weakly, with GT type II platelets. The negative results were only observed with GT type I platelets. Therefore, it seemed to recognize an antigenic site located in GP IIb-IIIa. Besides, this antibody inhibited the normal platelet aggregation.
A caesarian was advised because of foetal suffering an was performed without immediate complications. The patient was protected by our hemotherapy established support and delivered a boy with a severe hemolytic disease (Hematocrit: 6%, bilirrubine: 1,9 mgs./100mls., platelets: 40.000/ mm^3), who died 48h. later. His platelets had a direct positive test IgG type and in his serum the platelet antibody as in his mother's was detected.
We discuss the specificity of the antibody detected and also, its possible implication in the neonatal thrombocytopenia.

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THROMBASTHENIC-LIKE DEFECT IN PLATELETS OF THE AFRICAN GREEN MONKEY. J.C. Lewis, M.J. Greene, R.G. Taylor and R.R. Hantgan. Departments of Pathology and Biochemistry, Bowman Gray School of Medicine, Winston-Salem, NC, U.S.A.

African green monkeys, an animal model widely used in cardiovascular research, have platelets which ultrastructurally and functionally are similar to man. Through clinical screening of animals in a controlled breeding colony a congenital defect has been identified in platelets from an adolescent AG monkey, AJ403. The defect was characterized as abortive primary aggregation with ADP in the range 1.25-20.0 μM and PAF at concentrations to 5 X 10^{-6} M. Ultrastructurally, platelets within the aggregates had pseudopods, centralized granules and evidence of degranulation. Granule content release was verified using the luciferin-luciferase reaction in the Lumi-aggregometer. Platelet-platelet binding and close apposition, typically found with full primary and secondary aggregation, were not observed. Using a standardized in vitro assay at 37°C for 15-45 minutes, adhesion to formvar coated srufaces with AJ403 was 10-20% of control. Adherent cells had few pseudopods, minimal elaboration of the hyalomere, and limited cytoskeletal polymerization. Since the aggregation and adhesion patterns paralleled those described for Glanzmann's thrombasthenia, fibrinogen binding was quantitated using ^{125}I fibrinogen and was ultrastructurally evaluated using fibrinogen-gold conjugates. Following ADP stimulation in the presence of fibrinogen at 0.08, 0.16 and 0.24 mg/ml, normal platelets respectively bound 64, 81 and 106 X 10^3 molecules fibrinogen/cell whereas platelets from AJ403 bound 28, 43 and 52 X 10^3 molecules/cell. This correlated with the number of gold/fibrinogen conjugates bound to the platelet surface which with AJ403 were less than 40% of control. Our observations suggest a parallel of AJ403 with Type II Thrombasthenia in man.

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INTRACELLULAR CA^{++} MOBILIZATION IN GRAY PLATELET SYNDROME. ELECTRONMICROSCOPIC STUDIES ON AEQUORIN LOADED PLATELETS. K. Mori, S. Suzuki, K. Sugai, Y. Akutsu, M. Ishikawa, H. Sakai and K. Hiwatashi. Third Department of Internal Medicine, Tohoku University School of Medicine, Sendai, Japan.

Light microscopic examinations on platelets in Gray Platelet Syndrome(GPS) showed peculiar gray colored platelets due to deficiency in α-granules on the peripheral blood smear by May-Grünwald-Giemsa stain. Besides α-granule deficiency, however, several morphological abnormalities, especially abnormal features of dense tubular system(DTS) etc., were recognized in the transmission electronmicroscopic examinations. In the platelet function tests, release abnormalities rather than storage-pool deficiency were noted. We were strongly interested in the relationships between these morphological and functional abnormalities, because DTS in the platelets have been thought to be main storage sites of intracellular Ca ion.

We examined the intracellular Ca^{++} mobilization using aequorin loaded platelets by means of Lumi-aggregometer(Salzman's method) under the stimulation of A-23187 and thrombin, and also morphological changes of platelets during the process of platelet aggregation by light and transmission electronmicroscope.

Intracellular Ca^{++} concentration increased dose-dependently after addition of A-23187 in both normal and GPS platelets. Namely, besides the first peak of emission which located at the same site as normal control, the slowly appearing second peak were recognized on the trace line by the addition of A-23187 and also abnormal by thrombin in GPS platelets. Transmission electronmicrographs showed insufficient contraction of platelet-aggregates and malformation or wide appearance of pseudopods by the addition of A-23187 and thrombin. Most of the contractile gels, which were usually seen in the center of the platelets, were slightly enlarged and eccentric in the position. Delayed intracellular Ca^{++} mobilization were also noted even in the buffer solution containing EGTA.

From above mentioned results, intracellular Ca^{++} mobilization were abnormal and these low and delayed mobilization were thought to be related with prominent abnormal morphology, especially abnormalities of DTS in the GPS platelets.

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GRAY PLATELET SYNDROME AND IDIOPATHIC PULMONARY FIBROSIS OCCURRING IN THE SAME PATIENT : A FORTUITOUS ASSOCIATION ? T. FACON, J. GOUDEMAND, C. CARON, M. ZANDECKI, M.H. ESTIENNE, A. COSSON. Laboratoire d'Hématologie du C.H.R. - LILLE - FRANCE

A 46 yr old caucasian woman has been diagnosed as having a congenital deficiency of platelet α-granules (gray platelet syndrome - GPS) associated with an extensive idiopathic pulmonary fibrosis (IPF). The patient had a life long history of bleeding tendency including dental bleedings in childhood, intraperitoneal bleeding, metrorrhagias which led to hysterectomy, and post-operative hemorrhages. When aged 16, splenectomy was performed because of a mild thrombocytopenia but did not result in a subsequent improvement of the platelet count. The spleen was enlarged and showed an excess of fibrous tissue.

Evaluation of hemostasis (July 1986) revealed a moderate thrombocytopenia of 120 x 10^9/l constrasting with a markedly prolonged Simplate bleeding time (>30 min.). When examined on stained blood films, the platelets presented a "ghost-like" gray appearance. The mean platelet volume (coulter S + IV) was increased to 14 μ^3 (N : 6.5-9.5 μ^3). Ultrastructural studies confirmed the lack of α-granules and showed normal presence of dense-bodies, mitochondria and peroxisomes. Platelet aggregation was decreased when induced by thrombin, ADP and collagen but normal in response to arachidonic acid and ristocetin. A severely decreased content of platelet proteins such as fibrinogen, vWF:Ag, βTG and PF_4 was further demonstrated. A bone marrow biopsy performed on March 1986 gave no evidence of myelofibrosis (occasionally recorded in GPS) but the patient developed for these last 6 years a severe IPF requiring a permanent oxygen-therapy. Although the association GPS-IPF might be only considered as a fortuitous one, we hypothesize that these two events might be related to each other, possibly through the presence of megakaryocytes in pulmonary capillaries, in the same way as bone marrow fibrosis has been suggested as a possible consequence of the lack of α-granules in GPS (DROUET et al. - Nouv. Rev. Fr. Hématol., 1981, 23 : 95).