

# ROLE OF ALBUMIN IN THE REGULATION OF PLATELETS PRODUCTION G. Cherbit\*, F. Forestier\*\*, Y. Solé\*\*, M.H. Tersarkissian\*\*

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We measured Serum Albumin (S.A.) and Platelet Albumin (P.A.) on 144 normal individuals, 70 pregnant women (by using a Radio-Immuno-Assay method) and platelet counts.

All the data were studied according to the method of multivariate analysis on a UNIVAC 1110 computer.

The aim of our study was to quantify the influence of unknown parameters involved in S.A. synthesis and P.A. content.

Two distinct parameters were put forward by these experiments : First called S.A. parameter (decreased during pregnancy) second, P.A. parameter (increased during pregnancy).

On the other hand we established the existence of a third parameter controlling the regulation of platelet albumin content by altering the counts of circulating platelets.

The less we got platelets, the more the P.A. content was important, showing a feed back mechanism between S.A., P.A. and platelet counts.

Albumin is involved in the regulation of platelets production.

# FAMILIAL THROMBOCYTOPENIA WITH MORPHOLOGICAL CHANGES IN MEGAKARYOCYTES: A POSSIBLE NEW INHERITED PURPURA. F. Frassoni, F. Piovella, C. Castagnola, P. Almasio, M.M. Ricetti and E. Ascarì\*, Istituto di Clinica Medica I° and \*Istituto di Patologia Medica I° dell'Università di Pavia - 27100 Pavia - Italy.

Results of an investigation concerning a familial thrombocytopenia with morphological abnormalities of bone marrow megakaryocytes and moderate bleeding tendency are presented. The laboratory and clinical data of a young woman and her mother are described. Both patients presented prolonged bleeding time which correlated with a low platelet count and which was not associated with morphological or functional platelet impairment or plasmatic factors defects. Examination of bone marrow aspirates of both patients revealed the presence of unusual features.

Smears revealed a great increase of megakaryocyte count and most of them had the appearance of micromegakaryocytes. The nature of these cells was confirmed by immunofluorescence for factor VIII-related antigen and fibrinectin. Electron microscopy performed on megakaryocytes showed the presence of a wide peripheral area of amorphous substance, while platelet ultrastructure did not show any abnormality.

# MEGAKARYOCYTIC PROGENITORS (CFU-M) INCREASE NON-SPECIFICALLY IN CHRONIC IMMUNE THROMBOCYTOPENIA. S.A. Burstein, S.K. Erb, J.W. Adamson, L.A. Harker, University of Washington, Seattle, Washington, USA.

Previous studies from our laboratory have suggested that the numbers of CFU-M do not increase primarily in response to acute thrombocytopenia. To determine the effect and specificity of prolonged thrombocytopenia on CFU-M number, mice were given 4 intravenous injections on alternate days of multiply absorbed rabbit anti-mouse platelet serum (APS), while control animals received a similar regimen of rabbit anti-mouse red cell serum (ARS), normal rabbit serum (NRS), or phosphate-buffered saline (PBS). Two days after the final injection, the mean platelet count was  $0.314 \pm 0.129 \times 10^6/\mu l$  in animals given APS vs.  $1.105 \pm 0.048 \times 10^6/\mu l$  in animals given other regimens. The numbers of CFU-M, day 7 and day 14 erythroid burst forming cells (BFU-E), and granulocyte-macrophage colony forming cells (CFU-C) were determined in humerus and spleen.

	CFU-M	CFU-C	BFU-E (7)	BFU-E (14)
<b>Humerus:</b>				
APS	5074 ± 220	15,310 ± 821	1431 ± 125	569 ± 100
ARS	3187 ± 130	11,378 ± 659	750 ± 132	333 ± 75
NRS	3221 ± 130	11,213 ± 558	1189 ± 127	232 ± 47
PBS	3086 ± 309	11,357 ± 696	543 ± 74	147 ± 11
<b>Spleen:</b>				
APS	15,844 ± 2339	6645 ± 1878	2556 ± 159	712 ± 84
ARS	7029 ± 613	7527 ± 936	1835 ± 231	444 ± 65
NRS	3628 ± 426	3109 ± 1221	1347 ± 712	652 ± 65
PBS	2019 ± 364	848 ± 210	957 ± 272	147 ± 41

The generalized increase in progenitor cells in marrow in response to APS together with increases in CFU-M in spleen following ARS and NRS indicate that these cells may respond nonspecifically to foreign protein. The data suggest that the elevation in CFU-M numbers with chronic immune thrombocytopenia is at least partially independent of the platelet count.

# EFFECT OF SOLVENTS ON INDIUM-111 OXINE TRANSPORT IN HUMAN PLATELETS AND ON PLATELET FUNCTION IN VITRO. T. Tsukada, Div. Hematologic Res., Toranomon Hospital, Tokyo, Japan.

Mechanism of Indium-111 oxine (In) transport in human platelets in buffered saline and the effect of In-labeling on platelet function were studied using In dissolved in 25% of ethanol in saline (In-ES) or 0.01% of polysorbate 80 in HEPES buffer (In-PH). Increase in temperature up to 37°C progressively enhanced the transport of In-ES, while transport of In-PH reached to plateau at 15°C. A state of equilibrium was not reached during 2 hr incubation at 22°C in In-ES. Uptake of In-PH reached to plateau after only 15 min of incubation. Distribution of In taken up by platelets in In-ES was 57% in cytosol and 27% in stroma, while in In-PH 69% in stroma and 22% in cytosol. 88% of In in cytosol was bound to lipids (46% in cholesterol and 27% in PS+PI). 82% of In in stroma was found in PS+PI fraction. The fact that the ratio of free In between the platelet water space and the outside medium after 30 min of incubation at up to 0.1 μM of In exceeded unity, suggests saturable component of In transport prevails at this concentration in In-ES and In-PH. Kinetic constant could be calculated,  $K_t = 2nM$ ,  $V_{max} = 2.5 \text{ pmol/min/ml}$  in In-ES, and  $K_t = 1nM$ ,  $V_{max} = 0.7 \text{ pmol/min/ml}$  in In-PH. Elution of In from radiolabeled platelets in autologous plasma incubated at 37°C for 5 hr was less than 10% in the case of In-ES and 56% in the case of In-PH. Less than 3% of labeled-In was eluted from platelets in collagen-induced aggregation and 4-7% of In was eluted in thrombin-induced aggregation. Although 0.3% of ethanol and/or 6nM of oxine have no inhibitory effect of platelet aggregation, collagen-induced aggregation and release reaction of In-labeled platelet was impaired. 0.003% of polysorbate 80 itself abolished completely the aggregability of platelets by collagen or thrombin.

It is concluded In-PH is unsuitable for platelet labeling. In-111 oxine also seems to have problems which Cr-51 has, i.e. inhomogeneous distribution of In in a platelet population, elution of In from labeled platelets in circulation.