FREE COMMUNICATIONS XI

Platelets: Cellular Reactions.

RELATIONSHIP BETWEEN PLATELET DENSITY AND NUMBER OF DENSE BODIES. F. Rendu, M. Lebreton and J.P. Caen. Hôpital Lariboisière, Paris, France

Dense bodies are the storage site of 5-HT and their number might correlate with the different platelet populations. Mepacrine, a basic fluorescent dye, is a suitable tool for studying abnormalities in platelet 5-HT storage.

The content of platelet DB can be readily estimated by examination under fluorescence microscope of platelets charged with mepacrine. In human platelets, a mean number of 6.3 DB/platelet was found. This estimation has been performed in platelets of different densities separated on sucrose gradient: heavy platelets, in which 5-HT uptake is strongly inhibited by reserpine, had a mean number of 7 DB/platelet and none was empty of DB; light platelets which are less active in regard to 5-HT and insensitive to reserpine, had less than 3 DB/platelet and most of them had a cytoplasmatic fluorescence. Thus the proportion of light and heavy platelets can be directly established by staining platelets with mepacrine.

In view of this, platelets of two patients with an abnormal density distribution were studied for 5-HT and charged with mepacrine. The first presented an Hermansky-Pudlak syndrome (HPS), an increased proportion of light platelets, a low 5-HT uptake insensitive to reserpine and a great reduction of mepacrine-stained DB. The other patient with a Bernard-Soulier syndrome had only heavy platelets; 5-HT uptake in these large platelets was markedly increased and all platelets had more than 20 DB stained with mepacrine.

These results confirm that there is a good relationship between platelet density and number of dense bodies.

SEPARATION OF DEGRANULATED PLATELETS FROM NORMAL PLATELETS. P. Cieslar*, J.P. Greenberg, M.A. Packham, R.L. Kinlough-Rathbone and J.F. Mustard. McMaster University, Hamilton, Ontario, and University of Toronto, Toronto, Ontario, Canada.

Platelets degranulated by thrombin (TDP) can be recovered, are effective in hemostasis and survive normally upon infusion into rabbits. Two approaches to determine whether platelets have been degranulated *in vivo* are: (1) measurement of circulating released materials; (2) detection of circulating degranulated platelets. We have used arabino-galactan (Stractan II) density gradient centrifugation to separate normal and degranulated platelets. The following distribution was obtained with washed rabbit platelets.

Fraction	Density	Platelets	% Distribution of Platelets	
			Normal	TDP
I	1.052	Light	3	30
II	1.059	Intermediate	36	37
III	1.072	Heavy	61	33
			Normal+TDP (equal numbers)	
			22	
			48	
			30	

The serotonin, PF4 and adenine nucleotide contents of the TDP were less than those of normal platelets and the TDP in fraction I had the lowest amounts. When TDP were labeled with ⁵¹Cr and mixed with equal numbers of normal platelets, 85% of the platelets in fraction I were found to be TDP. ⁵¹Cr-TDP were injected into normal rabbits and reharvested after 18 hours. The greatest proportion of TDP was isolated in fraction I. Thus this method may make it possible to separate platelets that have lost their granule contents during participation in reversible thrombus formation *in vivo*.

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