Thesis Title : Scanning electron microscopic study of thalassemic platelets

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ABSTRACT

Patients with β-thalassemia/Hb E (Hb E) particularly after splenectomy, showed decreased oxygen tension in their circulating blood. Pulmonary thrombosis was described in most of these patients and it has been suspected that this hypoxemia may be secondary to platelet dysfunction. The evaluation of platelet function can be performed by platelet aggregation, platelet secretion or morphological changes under various stimulation. In this study, scanning electron microscopic quantitation on morphology of platelets from β-thalassemia/Hb E patients was carried out.

Fixation of platelet rich plasma (PRP) with a large volume of 0.25 % glutaraldehyde fixative after incubating at 37°C for 60 minutes conserved a high percent discoid platelets and resumption of platelet discoid shape whereas the immediately fixed PRP from the same normal subjects showed remarkable morphological changes and formation of small aggregates. Platelet morphological evaluation in β-

thalassemia/Hb E patients showed significant reduction in number of normal shape platelet and decreased capability to resume normal shape. The predominant morphological changes was pseudopod formation rather than cell sphering. More obvious abnormalities were found in splenectomized patients. These indicate that there may be an increase in platelet activation in thalassemic patients result in platelet morphlogical changes. Furthermore, the presence of erythrocytes with increased surface and cell volume ratio also showed the possibility of platelet activation in the patients.