Red blood cell vesicles in thalassemia

Lamchiagdhase P, Nitipongwanich R, Rattanapong C, Noulsri E, Lerdwana S, Pattanapanyasat K.

Department of Clinical Microscopy, Faculty of Medical Technology, Siriraj Hospital, Mahidol University, Bangkok 10700, Thailand.

Abstract

Vesicles are part of the red blood cells membrane which can be found in a small number in normal apoptotic process and increased in some diseases. In the present study, the authors measured the percentage of red blood cell vesicles in healthy subjects (n = 7), patients with alpha-thalassemia or Hemoglobin (Hb) H disease (n = 7), beta-thal/Hb E with nonsplenectomized (n = 5) and splenectomized (n = 7) before and after incubation at 48.6 degrees C by using flow cytometry. It was found that the percentage of vesicles in every group were not statistically significantly different (p > 0.05) between pre and post incubation at 5 min. The percentage of vesicles of healthy subjects, beta-thal/Hb E nonsplenectomized patients and splenectomized patients were highest when induced by heating for 60 min. For patients with Hb H disease, the percentage of vesicles was maximum at 30 min when compared with healthy subjects, beta-thal/Hb E nonsplenectomized patients and splenectomized patients, respectively. In the present study, the authors report the significant increase of the percentage of vesicles in Hb H disease, beta-thal/Hb E nonsplenectomized and splenectomized after induction by heat when compared with healthy subjects. These findings may support the different pathology of the red blood cells found in alpha- and beta-thalassemia.