Letter to the Editor

Dear Editor,

I read with interest Dr. Yazdani's reply about the article entitled “administration of magnesium sulfate to women with premature labor: The effect on bleeding time”.[1] In my review of hematology references, I could not find any reference for determining hemoglobin (Hb) sooner than 24 hrs and Dr. Yazdani had not cited any reference either. However, about the influence of Hb on homeostasis, there is a negligible level of free Hb in normal blood circulation and erythrocytes are the main storage of Hb, with about 640 million molecules per cell, and affect hemostasis.[2] The bleeding time is prolonged in anemic patients and can be restored to normal by transfusion of red cells.[2,3] Erythrocytes have been postulated to influence primary homeostasis by at least two mechanisms. They may promote the formation of a hemostatic plug by releasing ADP and may also enhance platelet adhesion to exposed subendothelial tissue by changing blood rheology. A rise in hematocrit appears to increase platelet transport to vessel wall.[4] Morphologic studies showed that erythrocytes are present around and sometimes within the platelet plug. The biochemical and functional interactions between platelet and other blood cells may modulate the hemostatic process.[5]

The quantity of platelets arriving at a given site of injury, and the time required for their adhesion to the damaged surface or to form a cohesive aggregate with other platelets is related to the velocity of blood flow. Blood flow will determine the shear rate to which platelet are subjected and adhere to the vessel surface. Shear rate is a manifestation of forces induced by relative velocities in laminar flow of parallel, adjacent layer of a fluid body. Erythrocytes selectively occupy the center of the axial stream in blood vessels, thereby increasing the quantity of platelets that are directed proximal to the vessel wall, thereby decreasing platelet flow rate.

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