Human Erythropoietin Changes Fatty Acids Composition of Blood Platelet Phospholipids in Hemodialyzed Patients

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Dear Sir,

End-stage renal failure (ESRF) is associated with hemostasis disturbances due mainly to platelet dysfunctions. An essential role in platelet activation is played by membrane phospholipids (PLs). In platelets five main classes of PLs have been isolated: phosphatidylethanolamine, phosphatidylserine, phosphatidylinositol, phosphatidylcholine and sphingomyeline [1]. An important part of their structure is played by saturated and unsaturated fatty acids (FAs). In patients with ESRF, changed lipid metabolism is observed, manifested mainly by their disturbed plasma concentrations, and also by a changed platelet PL composition, their changed distribution within platelet membrane, and disordered FA composition of individual PL classes [2, 3].

Recombinant human erythropoietin (rhuEPO), routinely applied in patients with ESRF, also influences hemostasis [4]. There are papers on its affect on lipid metabolism and platelet PL [5, 6]. It seemed then useful to discover the influence of rhuEPO on the FA composition of platelet PLs in hemodialyzed patients.

We examined 12 patients (9 men, 3 women, 26[±]10 years old, mean age 38.8 ± 9.2) with ESRF receiving chronic hemodialysis. The FA composition of platelet PLs was analyzed before and 6 months after rhuEPO treatment. RhuEPO (Eprex, Cilag) was administered subcutaneously, 2,000 U twice a week. For control, 12 matched healthy blood donors were selected. The PLs were separated using the method of Bligh and Dyer [7], and the FA composition of individual PL classes was de-

termined with the gas chromatography method, according to Michalak et al. [8].

Before rhuEPO therapy, great differences in FA composition were noted which concerned almost all FA and all PL classes, as compared to the control group. In general, an increase in saturated FAs in all PL classes was found. After rhuEPO administration the differences in FA composition in comparison with the state before rhuEPO treatment were significantly smaller, achieving in most of the FAs the values observed in the control group. Our results suggest that rhuEPO can modulate platelet PL metabolism.

The FA composition of platelet PLs, especially the proportion of saturated to unsaturated FAs in the platelet PL membrane, plays an important role in the functioning of many enzymes and other membranous processes. Then the FA composition may influence platelet activity. The problem, however, requires further study.

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