Decreased Levels of Platelet-Activating Factor in Blood of Patients With Lymphoid and Nonlymphoid Hematologic Malignancies

To the Editor:

Platelet-activating factor (PAF) is an ether phospholipid compound present in blood at the mean levels of 200 to 300 pg/mL. PAF is produced by a wide range of cells and exhibits potent regulatory activities in vitro on numerous cell types such as T and B lymphocytes, neutrophils, eosinophils, and monocytes. Blood PAF levels are regulated by an acetylhydrolase activity (AHA) found in serum and plasma. Changes in AHA have been reported during pathologic events such as hypertension, Tangier disease, and asthma. PAF is released in vitro from leukemic cell lines of B and T origin and from stimulated freshly isolated neoplastic cells of leukemic patients. These results lead us to investigate blood PAF concentrations and serum AHA in patients with lymphoid or nonlymphoid hematologic malignancies.

Peripheral blood and serum samples were obtained from leukemic patients and healthy individuals according to the Helsinki recommendations. Fifty patients had a lymphoid malignancy (25 non-Hodgkin lymphoma, 12 Hodgkin lymphoma, 7 chronic lymphocytic leukemia, 5 multiple myeloma, and 1 Waldenström’s macroglobulinemia). The sex ratio (M:F) was 1.4. The average age was 59 years (range, 16 to 90 years). Twenty-nine patients had a nonlymphoid malignancy (13 acute myeloid leukemias, 9 RAEB, 4 chronic myeloid leukemias, and 3 polycythemias). The sex ratio was 4.8. The average age was 63 years (range, 21 to 82 years). Sixty-two healthy individuals served as controls. The sex ratio was 1.4. The average age was 59 years (range, 20 to 98 years). One-milliliter blood samples were collected on ethanol (80% final) to assess PAF content. Blood PAF was purified on thin-layer chromatography plates and assessed for PAF by platelet-aggregation assay. The assay was sensitive enough to detect levels as low as 50 pg/mL. Sera were collected and stored at −80°C until assay of AHA, which was assessed according to the method of Miwa et al.

Blood PAF levels were significantly (P = .0001, Mann-Whitney U test) decreased in patients with lymphoid (74 ± 11 pg/mL) or nonlymphoid (106 ± 22 pg/mL) malignancies as compared with healthy controls (265 ± 21 pg/mL; Fig 1). Serum AHA was not significantly (P > .05, Mann-Whitney U test) different in patients with lymphoid (79.5 pm 4.1 nmol/mL/min) or nonlymphoid (71.6 ± 5.1 nmol/mL/min) malignancies as compared with controls (67.2 ± 2.3 nmol/mL/min).

Blood PAF and AHA levels in our healthy individuals are similar to previous reports. Despite experimental evidence reporting in vitro release of PAF from stimulated isolated neoplastic cells of patients with various types of leukemia, this clinical study provide no evidence to support this view in vivo regardless of the presence of circulating abnormal cells. Moreover, decreased blood PAF levels are found in leukemic patients as compared with controls. Because serum AHA levels are not different between control and leukemic patients a decreased PAF production by circulating cells and/or endothelial cells rather than an increased PAF catabolism could be responsible for the lower blood PAF contents in patients with leukemic malignancies. Numerous studies report immunoregulatory effects of PAF on blood cells in vitro. Although the molecular signals implicated in PAF-mediated effects are now being understood, its actions on freshly isolated leukemic cells are largely unknown. Clearly the physiologic meaning of the decreased blood PAF levels during leukemic malignancies deserves to be elucidated.

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REFERENCES


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