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UTILITY OF THE CLINICAL PRACTICE OF ADMNISTERING THROMBOPHILIC SCREENING AND ANTITHROMBOTIC PROPHYLAXIS WITH LOW-MOLECULAR-WEIGHT HEPARIN TO HEALTHY DONORS TREATED WITH G-CSF FOR MOBILIZATION OF PERIPHERAL BLOOD STEM CELLS

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The aim of the study was to verify the utility of the clinical practice of administering thrombophilic screening and antithrombotic prophylaxis with low-molecular-weight heparin to healthy donors receiving granulocyte colony-stimulating factor to mobilize peripheral blood stem cells. Thrombophilia screening comprised of testing for factor V Leiden G1691A, prothrombin G20210A, the thermolabile variant (C677T) of the methylene tetrahydrofolate reductase gene, protein C, protein S, factor VIII and homocysteine plasmatic levels, antithrombin III activity, and acquired activated protein C resistance.

We investigated prospectively 72 white Italian healthy donors, 39 men and 33 women, with a median age of 42 years (range, 18-65). Five donors (6.9%) were heterozygous carriers of Factor V Leiden G1691A; two healthy donors had the heterozygous prothrombin G20210A gene mutation; C677T mutation in the methylene tetrahydrofolate reductase gene was present in 34 (47.2%) donors in heterozygous and in 7 donors (9.7%) in homozygous.

Acquired activated protein C resistance was revealed in 8 donors of the study (11.1%). The protein C plasmatic level was decreased in 3 donors (4.2%); the protein S level was decreased in 7 donors (9.7%). An elevated factor VIII dosage was shown in 10 donors (13.9%) and hyperhomocysteinemia in 9 donors (12.5%). Concentration of antithrombin III was in the normal range for all study group donors. The factor V Leiden mutation was combined with the heterozygous prothrombin G20210A in 2 cases and with protein S deficiency in one case; 2 healthy donors presented an associated deficiency of protein C and protein S. Although none of these healthy subjects had a previous history of thrombosis, low-molecular-weight heparin was administered to all donors during granulocyte colony-stimulating factor administration to prevent thrombotic events. No donor experienced short or long-term thrombotic diseases after a median follow-up of 29.2 months.

Our data do not support this clinical practice because there is no evidence that the combination of granulocyte colony-stimulating factor to previous hypercoagulable conditions results in thrombotic events.

Key words: allogenic transplantation, antithrombotic prophylaxis, apheresis, healthy donors, peripheral blood stem cells, thrombophilic screening.

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