HEMOSTATIC ALTERATIONS DURING HUMAN IMMUNODEFICIENCY VIRUS INFECTION: A REVIEW

Domenico Prisco

Clinica Medica I, Università degli Studi di Firenze

Infection with the human immunodeficiency virus (HIV) leads to a variety of manifestations ranging from asymptomatic carriage to acquired immunodeficiency syndrome (AIDS). In the eighties many reports have indicated that thrombocytopenia is frequently associated to HIV infection and this still remains the most frequent and relevant alteration of the hemostatic system observed in these patients. More recently, other abnormalities of hemostasis were reported during the natural history of HIV infection. Due to the increasing incidence of seropositive subjects, the knowledge of these findings is important not only for infectivologists but also for clinical pathologists and general practitioners.

1. Thrombocytopenia

Thrombocytopenia is frequent in patients with evidence of HIV infection even if not affected by AIDS or AIDS-related complex (ARC). In particular, a clinical picture similar to idiopathic thrombocytopenic purpura (ITP) is nowadays considered to be a manifestation of HIV infection and was reported in the last years in different groups which are at risk for AIDS: sexually active male homosexuals, narcotic addicts, and hemophiliacs. The exact incidence of thrombocytopenia in subjects with HIV infection but not affected by AIDS or ARC is hardly determined from the literature because of the small number of subjects investigated in the individual studies. In a recent study from the group of Marmont in Genoa on a group of subjects with HIV

---

Key-words: Acquired immunodeficiency syndrome; Human immunodeficiency virus; Lupus anticoagulant; Thrombocytopenia; Thrombotic thrombocytopenic purpura.

Accepted for publication on April 10, 1989.

infection without AIDS the incidence of severe thrombocytopenia (platelet count less than 30,000/μl) was reported to be 5% and that of total thrombocytopenias (platelet count less than 100,000/μl) 10%. These values are consistent with those of other studies which reported an incidence of 8-12%.

1.1 Mechanisms for thrombocytopenia - Immune destruction appears to be the main mechanism for thrombocytopenia in HIV infection, as demonstrated in patients without overt AIDS, thereby excluding such confounding factors as therapy, infections and disseminated intravascular coagulation. In fact, bone marrow of most patients with isolated thrombocytopenia contains an increased number of megakaryocytes, thus suggesting peripheral platelet destruction. Moreover, platelet kinetic studies have indicated that increased platelet destruction is mainly due to extracorpuscular mechanisms and in most cases the site of platelet sequestration was reported to be exclusively splenic. On the other hand, in some cases a role could be played by anti-HIV antibodies which were shown to exert inhibitory effects on hematopoietic precursors in bone marrow.

Two main mechanisms, not necessarily excluding each other, were proposed as possibly responsible for immune platelet destruction:

i. a serum antibody directed against a specific platelet antigen;
ii. a non-specific deposition of immune complexes and complement on platelet surface.

Some authors proposed a pathogenetic role for antibodies against platelet antigens, similarly to what was described in idiopathic immune thrombocytopenia and in drug-induced immune thrombocytopenia. In particular, Stricker et al. have isolated from the serum of 29 out of 30 homosexual males with thrombocytopenic purpura an antibody able to bind to a platelet membrane antigen of 25,000 daltons. Other groups found antiplatelet autoantibodies in sera from HIV-infected thrombocytopenic patients, but failed to identify a target antigen. The presence of antibodies against an antigen sited on platelet surface would provide at least a partial explanation of thrombocytopenia, since antibody-coated platelets have been shown to be easily phagocytosed by leukocytes. However, thrombocytopenia was not always present in patients with antiplatelet antibodies possibly due to an increased platelet production or a defective Fc-receptor-mediated clearance reported in patients with AIDS.

Other authors attributed a prominent role in the pathogenesis of thrombocytopenia of subjects at risk of AIDS to a nonspecific deposition of comple-