Overview of Bleeding in Cancer Patients

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In patients with malignancy, hematologic abnormalities may lead to hemorrhagic manifestations, that are on the whole less frequent and significant than thrombotic manifestations.

Thrombocytopenia

Low platelet count may be the consequence of *marrow invasion*, *chemotherapy* or *platelet autoantibodies*. Significant replacement of the marrow by tumor cells occurs only in very advanced cancer. Autoimmune thrombocytopenia is most commonly seen in association with lymphoid malignancies, more seldom with lung, breast and testicular cancer. Moderately severe thrombocytopenia is frequent after chemotherapy of solid tumors. The bleeding risk associated with thrombocytopenia is not great in itself, but is enhanced by such factors as concurrent infection, mucosal damage, prior radiotherapy and short time intervals between chemotherapy courses.

Coagulation Abnormalities

It is well established that *disseminated intravascular coagulation* (DIC) is the most frequent cause of bleeding in

malignancy. It occurs more frequently with prostate cancer, melanoma and cancers of the gastrointestinal tract and lung. DIC is usually compensated and signs of consumption coagulopathy (severe hypofibrinogenemia and thrombocytopenia) are rare. The most common laboratory hallmark of DIC are moderate thrombocytopenia, slightly prolonged prothrombin times and increased plasma levels of D-dimer. Fibrinogen, factor V and factor are normal or high. Bleeding may be triggered by surgery and infections. Removal of the underlying tumor is the treatment of choice to control DIC, but its successful implementation is not frequent. Unfractionated or low molecular weight heparin may be attempted in patients with compensated DIC in the absence of lesions that are likely sources of bleeding (surgery, mucosal damage). *Acquired anticoagulants* are a relatively rare but often dramatic cause of bleeding in patients with cancer. The inhibitory substance may be antibodies inactivating factor VIII or other coagulation factors (factor V, von Willebrand factor); or heparin-like substances released by cancer cells. A general hemostatic agent such as recombinant activated factor VII is the most useful agent to control bleeding in these patients, particularly when a treatment of the specific defect is not possible.

References

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