The Bon marrow in Health And Disease in Children

Mohamed El Hussieny Ghoneim

During the last decade, there have been major advances in the understanding of the disorders of blood, accompanied with increasing recognition of the complex structural and hormonal interrelations between the cellular and tissue elements of the bone and marrow.The accessibility of the marrow and its response to stimuli producing depression or hyperplasia clarifies the value of marrow aspiration. The availability of repeated examinations and the comparative ease of identifying the cellular elements account for the frequency with which marrow aspiration is performed. Also, the disturbances of each of the principal blood elements are reflected earlier, or are more conspicuous in the bone marrow than in the peripheral blood. Moreover, bone marrow examination serves as a guide to therapy with hematinic and even chemotherapeutic agents. The fundamental importance of using bone marrow aspiration in neonates is that it helps to assess adequately their reaction to such risks as prematurity, exchange transfusion, infection and irradiation. Marrow aspiration and examination are essential in evaluating cellularity, studying detailed cellular structure and detecting the presence ox' the absence of abnormal cells in the bone marrow of neonates exposed to a risk. Improvements in the biopsy technique, as well as technical progress in their preparation, have provided additional impetus to the study of the bone marrow as an organ, with it architecture and components intact and in their natural spatial context. This offers a broader basis for comprehension of its function in health and in disease. So, bone marrow biopsies are now widely used in investigation and follow up of many haematological disorders. Thus, it is indicated in differential diagnosis of cytopenias and for the prognostic classification of the myeloproliferative disorders. Various precautions may be of help to avoid hypoplasia or aplasia of the bone marrow :-Any myelotoxic agent should be avoided.-Drugs, particularly chloramphenicol, should not be used empirically in pediatrics. The main two indications are enterica and hemophilus influenza infections (meningitis, pneumonia, etc.).-Vaccines for hepatitis should be used to prevent hepatitis with possible depression of the bone marrow.Despite the hazards of bone marrow transplantation, it is considered to be a life-long cure for a variety of fatal congenital and acquired disroders of childhood. So, the following points are a must for successful marrow* Proper choice of a donor; a histocompatible sibling, old enough to serve as a suitable donor, is necessary.* Processing marrow prior to transfusion. The ideal is a marrowrich in stem cells, poor in immunocompetent

cells'.* Adequate pre-conditioning of the patient with cyclophosphamideis of a great value in diminishing the problem of the graft rejection.* G V H D, a potentially lethal complication, is treated with an immuno-suppressive agent and antilymphocytic serum.* Adequate supportive measures in the post transplant period should be taken.