

Bone Marrow Transplantation and Other Treatment after Radiation Injury

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A review prepared for the Commission of the European
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Abstract

This review deals mainly with current concepts about bone marrow transplantation as therapy for serious radiation injury. Such injury can be classified according to the following broadly defined dose ranges: (1) the supralethal range, leading mainly to the cerebral and intestinal syndromes; (2) the potentially lethal or therapeutic range which causes the bone marrow syndrome, and (3) the sublethal range which rarely leads to injury requiring therapy. The bone marrow syndrome of man and animals is discussed in detail. The optimal therapy for this syndrome is bone marrow transplantation in conjunction with conventional supportive treatment. The principal complications of such therapy are Graft versus Host Disease and a slow recovery of the recipient's immune system.

Concerted research activities in a number of institutions have led to considerable progress in the field of bone marrow transplantation. Improved donor selection, new techniques for stem-cell separation and preservation, as well as effective barrier-nursing and antibiotic decontamination, have made bone marrow transplantation an accepted therapy for marrow depression, including the aplasia caused by excessive exposure to radiation. The review also contains a number of guidelines for the handling of serious radiation accidents.

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