Introduction

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This volume is intended to cover the most recent developments in the design, development and application of iron-chelating drugs for clinical use. Iron-chelating medications are primarily intended for the protection of patients with chronic, transfusion-dependent anemias from the harmful consequences of iron accumulation and the consequent iron toxicity. This volume summarizes the experience with long-term iron-chelating therapy with the well-established iron chelator desferrioxamine and the new, orally effective deferiprone (LI) in thalassemic patients. In spite of impressive clinical results and achievements, there is a continued need for developing new, nontoxic and orally effective chelators. Two of the present chapters describe ongoing efforts in the design, development and evaluation of new iron chelators. In addition, new indications for iron-chelating therapy are continuously being explored. Some of the most promising fields involve the use of iron chelators in preventing the proliferation of the malarial parasite by inhibition of ribonucleotide reductase and other iron-dependent enzymes, the inhibition of tumor growth by a similar mechanism with particular emphasis on the management of neu-roblastoma, the use of iron chelators in the prevention of free radical damage in reperfusion injury following transient hypoxia, and their application for the prevention of anthracycline cardiotoxicity. It is hoped that the reader will find these chapters useful as an update on the state of the art in the management of transfusional iron overload and as a guide in the potential use of chelators for other clinical problems.

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