Synopsis

This book provides a unified and comprehensive compendium of issues related to the spinal delivery of drugs. The text, consisting of 34 chapters, begins with an extensive review of the early history, reflecting the development of the spinal cord as a route of spinal drug delivery. It then presents 4 principal divisions. In the first, the embryology, anatomy of the spinal canal, the spinal canal meninges and vasculature are reviewed in humans and non-human species. The second division considers the factors that define the redistribution of spinally delivered drugs and the movements of such drugs into the spinal parenchyma are considered in detail. The third section considers issues that relate to the preclinical development of drugs for spinal delivery. This division includes issues that pertain to preclinical models for drug safety evaluation, the nature of vehicles for spinal drugs and properties of materials for chronic spinal implantation. In addition, the nature of the inflammatory reactions that are observed with foreign bodies and toxicity are presented. The fourth division considers the several therapeutic targets towards which spinally delivered drugs are aimed. These include analgesics, anesthetics, antispasticity, antimetastatic and growth factors. In each case, the site and mechanisms of action and the several drug classes that are relevant are presented. The book seeks to address the broad categories of interest that are represented by the scientists who focus on the biology of spinal cord function, the toxicologist and chemist who develop and formulate drugs for human spinal therapeutic use and the clinicians who seek an in-depth review of spinal drug delivery.

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