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BOOK REVIEW

All you ever wanted to know about teratogens and more

Teratogens and more

Catalog of Teratogenic Agents – 13th edition, edited by Thomas H Shepard
ISBN-10:080189784X; ISBN-13: 978-0801897849
The Johns Hopkins University Press, Baltimore, 2010
576 pp, RRP: $270/£140

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This is not one of those books to read from cover to cover. It is a serious reference book listing more than 3400 known teratogenic agents from A to Z, including chemicals, drugs, physical factors, gene mutations and viruses. I like that it starts and concludes with a timetable of developmental events comparing humans and experimental animals. I was once asked by a patient when the human heart starts beating; I now know this happens at 22 days, much earlier than I thought. There are about 360 additions to this edition, of which 120 are newly listed agents. Some nonteratogenic agents have also been included to highlight the importance of negative published data. We know that about 2–3% of all human newborns have a congenital anomaly. Some are due to gene mutations, some due to chromosome aberrations. About 10% of the remaining anomalies can be attributed to teratogenic agents. Therefore it is important to link the information on experimental teratogenic agents to congenital anomalies in humans. With this edition, over 400 developmental genes have been added, which when altered produce defects in animals or humans; for example, the PAX2 gene is listed as the cause of the renal-coloboma syndrome. Each entry has literature references for further reading. I looked up the entry on thalidomide, the sedative that became the most notorious teratogen known to man. I found it to be very comprehensive, explaining about the relationship between the time of treatment of the mother and the type of defect observed in the children, as well as new uses that exist for this drug, such as in treating leprosy, Behçet syndrome, AIDS and cancer. I learned that the mouse and rat embryo are relatively insensitive to thalidomide as compared to the rabbit, monkey and man. Its mechanism of action and the reason for its species specificity are still poorly understood. Many important lessons can be learned from the presently available information on teratogens to prevent congenital malformations in humans in the times to come. To quote from the book's introduction, 'if many anomalies will be produced by the interaction of genes with a teratogenic agent, it undoubtedly will be easier to remove the agent than to alter the action of the gene'.

This book provides a reference for teratologists and is a very useful addition to the library of any obstetrician, pediatrician and geneticist. It is also of interest to chemists, scientists who are concerned about the way in which we modify our environment and the pharmaceutical industry■

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