Prenatal Diagnosis and Treatment of Spina Bifida

Guest Editor

N. Scott Adzick, Philadelphia, Pa.
Fetal growth restriction is possibly the commonest of the great obstetric syndromes. Small fetuses and newborns have a higher risk of intrauterine fetal death and poorer perinatal outcome, and suffer fetal programming and remodeling in different organ systems, which may decrease life expectancy and quality of life. This special issue deals with all of the current relevant topics and challenges concerning the management of fetal growth restriction, and contains several updated reviews about prevention, management and postnatal consequences, as well as original papers that provide new insights into the pathophysiology and clinical management of this syndrome.

Contents

• Fetal Growth Restriction as a Perinatal and Long-Term Health Problem: Clinical Challenges and Opportunities for Future (4P) Fetal Medicine: Gratacós, E.; Figueras, F.
• Update on the Diagnosis and Classification of Fetal Growth Restriction and Proposal of a Stage-Based Management Protocol: Figueras, F.; Gratacós, E.
• Evaluation of an Optimal Gestational Age Cut-Off for the Definition of Early- and Late-Onset Fetal Growth Restriction: Savchev, S.; Figueras, F.; Sanz-Cortes, M.; Cruz-Lemini, M.; Triunfo, S.; Botet, F.; Gratacos, E.
• Placental Pathology in Early-Onset and Late-Onset Fetal Growth Restriction: Mifsud, W.; Sebire, N.J.
• Survey on the Current Trends in Managing Intrauterine Growth Restriction: Savchev, S.; Figueras, F.; Gratacós, E.
• Neurodevelopment after Fetal Growth Restriction: Baschat, A.A.
• Long-Term Follow-Up of Intrauterine Growth Restriction: Cardiovascular Disorders: Demicheva, E.; Crispi, F.
• Fetal Growth Restriction at the Limits of Viability: Visser, G.H.A.; Bilardo, C.M.; Lees, C.
• The Disappearing Brain-Sparing Effect in Early-Onset Fetal Growth Restriction Fetuses Revisited: Yeniel, A.O.; Ergenoglu, A.M.; Sanhal, C.Y.; Akdemir, A.; Akercan, F.; Kazandi, M.; Sagol, S.

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Scope and Vision
The scope of *Fetal Diagnosis and Therapy* is fetal medicine in its broadest sense, including basic science and pathophysiological issues, prenatal diagnosis, clinical management and fetal therapy. The journal’s main goal is to provide useful information and new insights into fetal diagnosis and therapy in the form of original research, reviews and relevant clinical cases and images. Our vision is to become a journal of reference for the multidisciplinary audience of professionals involved in clinical practice and research in fetal medicine. Authors should ensure that their work complies with all regulations laid down by their state or community and should have obtained the necessary informed consent. Neither the editors nor the publishers will accept any responsibility in the case of neglect or avoidance of these rules.

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Letters to the Editor
Letters are encouraged if they directly concern articles previously published in this journal or clinical subjects related to the matters discussed. The editor reserves the right to submit copies of such letters to the authors of the articles concerned prior to publication in order to permit them to respond in the same issue of the journal. Letters on general scientific or medical subjects in fetal medicine are also welcome.

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In order to provide safe and effective drug therapy to neonates, it is necessary to know about and understand the impact their development has on the pharmacokinetics and pharmacodynamics of drugs. The fact that children are different and neonates very different from adults means that, in neonates, it would be unwise to dose medications by scaling down adult doses proportionately, simply attempting to match their smaller weight and/or body surface area. When one makes decisions about neonatal drug therapy, one must not only take into consideration the available data but also critically assess and interpret this information within the context of fetal development and maturational processes as well as within the context of diseases that might affect a drug’s biodisposition. This book includes the latest information on the regulation and scientific basis of drug development and also provides a rationale for formula development for preterm infants. It offers guidance on how to translate pharmacokinetic data into dosing recommendations and also covers legal and regulatory issues relating to neonatal pharmacotherapy.
Update in the analysis of cell-free DNA testing

Prenatal screening by cell-free (cf) DNA in maternal plasma has opened a new landscape for fetal medicine. Large clinical series have demonstrated that cfDNA analysis of maternal blood can achieve trisomy 21 detection rate of 99% for false-positive rate below 0.1%, which is a great improvement upon the current screening strategies. However, there is a need to define the optimal way of combining cfDNA testing with other first trimester exams. Likewise, several commercial cfDNA tests have rapidly become available, but their main features are not always readily comprehensible for clinicians. In this special issue, we combine a practical overview from a clinical perspective with meta-analysis and theoretical models that help explain the impact of introducing cfDNA testing, along with a number of important recent research contributions. This issue offers clinicians involved in fetal medicine up-to-date and useful information about the current state of cfDNA testing and how to use it in their daily practice.

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This journal covers the most active and promising areas of current research in gynecology and obstetrics. Invited, well-referenced reviews by noted experts keep readers in touch with the general framework and direction of international study. Original papers report selected experimental and clinical investigations in all fields related to gynecology, obstetrics and reproduction. Short communications are published to allow immediate discussion of new data. The international and interdisciplinary character of this periodical provides an avenue to less accessible sources and to worldwide research for investigators and practitioners.

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The first journal to focus on the fetus as a patient, 'Fetal Diagnosis and Therapy' provides a wide range of biomedical specialists with a single source of reports encompassing the common discipline of fetal medicine. The journal comprehends sections such as Mini Reviews, where specific questions of clinical interest are addressed by internationally renowned experts in the field, or Images in Fetal Medicine, which aims at exploiting the huge amount of images that the practice of fetal medicine generates, with particular interest in documenting cases with multimodal imaging. 'Fetal Diagnosis and Therapy' offers a selection of peer-reviewed original research papers ranging in scope from basic and pathophysiologic investigations to clinical studies in fetal diagnosis and therapy.

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This highly respected and frequently cited journal is a prime source of information in the area of fetal and neonatal research. Original papers present research on all aspects of neonatology, fetal medicine and developmental biology. These papers encompass both basic science and clinical research including randomised trials, observational studies and epidemiology. Basic science research covers molecular biology, molecular genetics, physiology, biochemistry and pharmacology in fetal and neonatal life. Papers reporting results of animal studies should be based upon hypotheses that relate to developmental processes or disorders in the human fetus or neonate.

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'Developmental Neuroscience' is a multidisciplinary journal publishing papers covering all stages of invertebrate, vertebrate and human brain development. Emphasis is placed on publishing fundamental as well as translational studies that contribute to our understanding of mechanisms of normal development as well as genetic and environmental causes of abnormal brain development. The journal thus provides valuable information for both physicians and biologists. To meet the rapidly expanding information needs of its readers, the journal combines original papers that report on progress and advances in developmental neuroscience with concise mini-reviews that provide a timely overview of key topics, new insights and ongoing controversies.

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Understanding Differences and Disorders of Sex Development (DSD)

Ten years ago a group of experts assembled in Chicago to develop a consensus on the management of conditions previously described as intersex. The consequences of this consensus have been far reaching, including a change in nomenclature, the development of greater collaboration across geographical boundaries, and a move towards greater involvement of patients and parents. Moreover, an international registry was established, as well as research and clinical networks.

This book brings together a thorough overview on all these topics. Furthermore, the major technological advances in diagnostic, genetic and biochemical capabilities over the past 10 years are outlined in detail. Offering a comprehensive update on various aspects of disorders of sex development (DSD), this book will be essential reading to all clinicians who are involved in delivering healthcare to patients with a DSD, as well as scientists involved in biomedical research related to DSD.

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Cells Tissues Organs aims at bridging the gap between cell biology and developmental biology and the emerging fields of regenerative medicine (stem cell biology, tissue engineering, artificial organs, in vitro systems and transplantation biology). CTO offers a rapid and fair peer-review and exquisite reproduction quality. Special topic issues, entire issues of the journal devoted to a single research topic within the range of interests of the journal, are published at irregular intervals.

Selected contributions
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- Aorta-Derived Mesangioblasts Can Be Differentiated into Functional Uterine Epithelium, but Not Prostatic Epithelium or Epidermis, by Instructive Mesenchymes: Simon, L. (New Orleans, La.); Cooke, P.S. (Gainesville, Fla.); Berry, S.E. (Urbana, Ill.)
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- Localization, Not Important in All Tumor-Suppressing Properties: A Lesson Learnt from Scribble: Elsum, I.A. (Melbourne, Vic.); Humbert, P.O. (Melbourne, Vic./Parkville, Vic.)
- Embryonic Stem Cells Facilitate the Isolation of Persistent Clonal Cardiovascular Progenitor Cell Lines and Leukemia Inhibitor Factor Maintains Their Self-Renewal and Myocardial Differentiation Potential in vitro: Hoebau, J.; Heher, P.; Gottschamel, T.; Scheinast, M.; Auner, H.; Walder, D.; Wiedner, M.; Taubenschmid, J.; Miksch, M.; Sauer, T.; Schultheis, M. (Vienna); Kuzmenkin, A. (Cologne); Seiser, C. (Vienna); Hescheler, J. (Cologne); Weitzer, G. (Vienna)
In this issue the authors from The Children’s Hospital of Philadelphia along with international colleagues share findings and present best practices gleaned from – and subsequent to – the MOMS (Management of Myelomeningocele Study) trial. They provide a detailed account of the specific roles the different diagnostic and imaging modalities (maternal serum α-fetoprotein, ultrasound, magnetic resonance imaging, and echocardiography) played in diagnosis, treatment, and monitoring. Nuances of the fetal myelomeningocele (MMC) repair technique and long-term urologic functional outcomes as well as the progress towards fetal MMC repair using tissue engineering techniques are evaluated and analyzed in this publication. Find out about the fetal MMC repair outcomes at The Children’s Hospital of Philadelphia since the MOMS trial concluded!

This issue is directed at obstetricians, maternal-fetal medicine specialists, pediatric surgeons, neurosurgeons, neonatologists, radiologists, anesthesiologists, cardiologists, geneticists, pediatricians, nurses, and social workers who play a crucial role within the multidisciplinary teams that manage fetuses with anatomic or genetic defects.