

JOURNAL OF PERINATAL MEDICINE

OFFICIAL JOURNAL OF THE WORLD ASSOCIATION OF
PERINATAL MEDICINE, THE INTERNATIONAL ACADEMY OF
PERINATAL MEDICINE, THE NEW YORK PERINATAL SOCIETY
AND THE SOCIETY THE FETUS AS A PATIENT

EDITOR-IN-CHIEF

Joachim W. Dudenhausen, Berlin, Germany

FOUNDING EDITOR

Erich Z. Saling, Berlin, Germany

**COORDINATING EDITOR
FOR THE WAPM**

Frank A. Chervenak, New York, US

**COORDINATING EDITOR
FOR THE IAPM**

Asim Kurjak, Zagreb, Croatia

ASSOCIATE EDITORS OBSTETRICS

Thorsten Braun, Berlin, Germany

Vincenzo D'Addario, Bari, Italy

Mehmet Genc, Gainesville, US

Amos Grunebaum, New York, US

Roberto Romero, Detroit, US

Daniel Skupski, New York, US

**ASSOCIATE EDITOR OBSTETRICS &
REVIEWS EDITOR**

Ivica Zalud, Honolulu, US

ASSOCIATE EDITORS NEONATOLOGY

Marty Ellington, New York, US

Anne Greenough, London, UK

ASSOCIATE EDITOR STATISTICS

Marietta Kirchner, Heidelberg, Germany

EDITORIAL BOARD

Haim Abenhaim, Montreal, Canada

João F. Bernardes, Porto, Portugal

Jonathan Blau, Staten Island, US

Eran Bornstein, New York, US

Luis Cabero, Barcelona, Spain

Xavier Carbonell-Estrany, Barcelona, Spain

Erich Cosmi, Padua, Italy

Mary E. D'Alton, New York, US

Dan Farine, Toronto, Canada

Sonia S. Hassan, Detroit, US

Roland Hentschel, Freiburg, Germany

Wolfgang Holzgreve, Bonn, Germany

Wolfgang Köpcke, Münster, Germany

Ben Lee, Doha, Qatar

Jorge C. Martinez, Buenos Aires, Argentina

Giovanni Monni, Sardegna, Italy

Zoltan Papp, Budapest, Hungary

Ranjan K. Pejaver, Bangalore, India

Ritsuko K. Pooh, Osaka, Japan

Giuseppe Rizzo, Rome, Italy

Ola D. Saugstad, Oslo, Norway

Joseph Schenker, Jerusalem, Israel

Klaus Vetter, Berlin, Germany

Alexander Weichert, Berlin, Germany

Hung N. Winn, Columbia, US

Bruce K. Young, New York, US

Roland Zimmermann, Zurich, Switzerland

SOCIAL MEDIA EDITOR

Nicola Volpe, Parma, Italy

ETHICAL ADVICE

Frank A. Chervenak, New York, US

MANAGING EDITOR

Heike Jahnke, c/o De Gruyter



CROWN
CORE OUTCOMES IN
WOMEN'S AND NEWBORN HEALTH

DE GRUYTER

ABSTRACTED/INDEXED IN Baidu Scholar · Cabells Journalytics · CABI (over 50 subsections) · Case · Chemical Abstracts Service (CAS): CAPlus; SciFinder · CINAHL · CNKI Scholar (China National Knowledge Infrastructure) · CNPIEC: cnpLINKer · Dimensions · EBSCO (relevant databases) · EBSCO Discovery Service · EMBASE · Genamics JournalSeek · Google Scholar · ICAP Alcohol Information Databases · Japan Science and Technology Agency (JST) · J-Gate · Journal Citation Reports/Science Edition · JournalGuide · JournalTOCs · KESLI-NDSL (Korean National Discovery for Science Leaders) · Medline · MyScienceWork · Naver Academic · Naviga (Softweco) · Norwegian Register for Scientific Journals, Series and Publishers · Pathway Studio · Primo Central (ExLibris) · ProQuest (relevant databases) · Publons · PubMed · PubsHub · QOAM (Quality Open Access Market) · ReadCube · Reaxys · SCImago (SJR) · SCOPUS · Semantic Scholar · Sherpa/RoMEO · SIIC Data Bases · Summon (ProQuest) · TDNet · Text Mining · Ulrich's Periodicals Directory/ulrichsweb · WanFang Data · Web of Science: Biological Abstracts; BIOSIS Previews; Current Contents/Clinical Medicine; Prous Science Integrity; Science Citation Index; Science Citation Index Expanded · WorldCat (OCLC) · X-MOL · Yewno Discover

The Journal is associated with the World Association of Perinatal Medicine.



The Journal is associated with the International Academy of Perinatal Medicine.



The Journal is associated with the New York Perinatal Society.



The Journal is associated with the The Fetus as a Patient Society.



The Journal is associated with Core Outcomes in Women's Health.



The publisher, together with the authors and editors, has taken great pains to ensure that all information presented in this work (programs, applications, amounts, dosages, etc.) reflects the standard of knowledge at the time of publication. Despite careful manuscript preparation and proof correction, errors can nevertheless occur. Authors, editors and publisher disclaim all responsibility for any errors or omissions or liability for the results obtained from use of the information, or parts thereof, contained in this work.

The citation of registered names, trade names, trademarks, etc. in this work does not imply, even in the absence of a specific statement, that such names are exempt from laws and regulations protecting trademarks etc. and therefore free for general use.

ISSN 0300-5577 · e-ISSN 1619-3997 · CODEN JPMAO

All information regarding notes for contributors, subscriptions, Open access, back volumes and orders is available online at www.degruyter.com/jpm.

RESPONSIBLE EDITOR Dr. Joachim W. Dudenhausen, Professor and Chairman Emeritus - Department of Obstetrics, Charite University Medicine Berlin, Berlin, Germany

JOURNAL COORDINATOR Heike Jahnke, De Gruyter, Genthiner Str. 13, 10785 Berlin, Germany, Tel.: +49 (0)30 260 05 – 220, Fax: +49 (0)30 260 05 – 184, e-mail: jpm.editorial@degruyter.com

ADVERTISEMENTS e-mail: anzeigen@degruyter.com

© 2023 Walter de Gruyter GmbH, Berlin/Boston, Germany

TYPESETTING TNQ Technologies, Chennai, India

PRINTING Franz X. Stücker Druck und Verlag e.K., Ettenheim



Contents

Highlight Issue: Stem Cells in Perinatal Medicine

Issue Editor: Wolfgang Holzgreve

Editorial

Wolfgang Holzgreve

Stem cells in perinatal medicine — 723

Articles – Stem Cells in Perinatal Medicine

Sven Wellmann

Stem-cell therapy in neonates – an option? — 726

Lea J. Berg and Oliver Brüstle

Stem cell programming – prospects for perinatal medicine — 730

Arne Jensen

Cerebral palsy—brain repair with stem cells — 737

Brigitte Strizek

Perinatal brain damage – what the obstetrician needs to know — 752

Christoph Boesecke

Stem cells in HIV infection — 757

Volker Busskamp

Stem cells for treating retinal degeneration — 759

Klaus Ferdinand Gärditz

Work with embryonic stem cells – legal considerations — 763

Original Articles – Obstetrics

Piya Chaemsaitong, Roberto Romero, Pisut Pongchaikul, Pornpun Vivithanaporn, Waranyu Lertrut, Aditthep Jaovisidha, Paninee Mongkolsuk, Perapon Nitayanon, Khontawan Pongsuktavorn, Threebhorn Kamlungkuea, Eunjung Jung, Manaphat Suksai, Arunee Singhsnaeh, Piroon Jenjaroenpun, Iyarit Thaipisuttikul and Thidathip Wongsurawat

Rapid diagnosis of intra-amniotic infection using nanopore-based sequencing — 769

Patrick Stelzl, Sven Kehl, Peter Oppelt, Andreas Mayr, Tobias Fleckenstein, Holger Maul, Sabine Enengl, Richard Berger and Werner Rath

Maintenance tocolysis, tocolysis in preterm premature rupture of membranes and in cervical cerclage – a Germany-wide survey on the current practice after dissemination of the German guideline — 775

Noga Borochoy Hausner, Yael Baumfeld, Shimrit Yaniv-Salem, Batel Hamou and Tali Silberstein

The impact of cerclage placement on gestational length in women with premature cervical shortening — 782

Ichchha Madan, Frank I. Jackson, Reinaldo Figueroa and Ray Bahado-Singh

Preterm prelabor rupture of membranes in singletons: maternal and neonatal outcomes — 787

Luana Sarmiento Neves da Rocha, Victor Bunduki,
Daniel Dante Cardeal, Antônio Gomes de Amorim Filho,
Fernando Souza Nani, Stela Verzinhasse Peres,
Werther Brunow de Carvalho, Rossana Pulcineli Vieira de
Francisco and Mário Henrique Burlacchini de Carvalho

**Risk factors for shunting at 12 months following
open fetal repair of spina bifida by
mini-hysterotomy — 792**

Toshiyuki Hata, Tomomi Kawahara, Miyu Konishi, Saori Bouno,
Tomomi Yamanishi, Aya Koyanagi and Takahito Miyake

**Isolated tortuous ductus arteriosus in a fetus: HDlive Flow
with spatiotemporal image correlation (STIC)
study — 798**

Original Articles – Fetus

Caroline Cervante Chagas, Ana Letícia Siqueira Pontes,
Nathalie Jeanne Bravo-Valenzuela, Alberto Borges Peixoto,
Ilenia Mappa, Clementina Viscardi, Giuseppe Rizzo and
Edward Araujo Júnior

**Assessment of fetal heart aortic and pulmonary valve
annulus area by three-dimensional ultrasonography:
reference curves and applicability in congenital heart
diseases — 805**

Fernando Viñals, Flavia Correa, David Escibano,
Lorena Hormazábal, Linder Diaz, Alberto Galindo,
Belkys Zambrano, Gabriel Quiroz and Constanza Saint-Jean
**Feasibility of extended ultrasound examination of the
fetal brain between 24 and 37 weeks' gestation in low-risk
pregnancies — 815**