

VIEWS AND REVIEWS

1 Introduction: Uterus transplantation

M. Brännström

Göteborg and Stockholm, Sweden

Uterus transplantation is the first treatment for absolute uterine factor infertility. Major developments in the uterus transplantation field include assisted reproduction, minimally invasive surgery, screening of donors, and expansion of the donor pool.

3 Global results of human uterus transplantation and strategies for pre-transplantation screening of donors

M. Brännström, A. Enskog, N. Kvarnström, J. M. Ayoubi, and P. Dahm-Kähler

Göteborg and Stockholm, Sweden; and Suresnes, France

Since the first live birth after uterus transplantation in 2014, this new field of infertility treatment and reproductive surgery is rapidly growing. Results from several clinical trials and live births have been published. The current knowledge about surgery, outcomes and screening modalities for donors will be discussed further.

11 Laparotomy or minimal invasive surgery in uterus transplantation: a comparison

J. M. Ayoubi, M. Carbonnel, P. Pirtea, N. Kvarnström, M. Brännström, and P. Dahm-Kähler
Suresnes, France; and Gothenburg and Stockholm, Sweden

Minimal invasive surgery with robotics will be the preferred method in uterus transplantation in the future. Predicted benefits are surgical accuracy, minimal bleeding, short hospital stays, and early recovery to normal life for live donors and recipients.

19 Assisted reproductive technology strategies in uterus transplantation

D. de Ziegler, P. Pirtea, M. Carbonnel, M. Poulain, and J. M. Ayoubi
Suresnes, France

Uterine transplantation raises assisted reproductive technology-related issues notably, regarding indications, oocyte retrievals and endometrial preparation.

24 Live versus deceased donor in uterus transplantation

N. Kvarnström, A. Enskog, P. Dahm-Kähler, and M. Brännström
Göteborg and Stockholm, Sweden

Uterus transplantation can successfully be performed with the organ from either live or deceased donors. There exist pros and cons with each donor source.

INKLINGS

28 Artificial intelligence: its applications in reproductive medicine and the assisted reproductive technologies

N. Zaninovic, O. Elemento, and Z. Rosenwaks
New York, New York

REFLECTIONS

31 Optimizing semen parameters at the molecular level: possible avenue for improvement in assisted reproductive technology success rates?

T. P. Kohn and R. I. Clavijo
Baltimore, Maryland; and Sacramento, California



32 DNA methylation profiling of peripheral blood samples is a promising new approach to screen for male infertility

A. Balasubramanian, N. Thirumavalavan,
and A. W. Pastuszak
Houston, Texas; and Salt Lake City, Utah

34 Discordant ovarian reserve testing: what matters most?

H. S. Hipp and J. F. Kawwass
Atlanta, Georgia

35 Primum non nocere: are we closer to saying that the trophectoderm biopsy does no harm?

J. J. Berger
Los Angeles, California

37 Need for expanding insurance coverage for in vitro fertilization in the United States

C. N. Herndon
Seattle, Washington

39 Is coffee bad for reproduction? Maybe not, after all.

J. E. Chavarro
Boston, Massachusetts

41 Health status of young adults conceived by assisted reproductive technology: is there cause for concern?

R. S. Kirby
Tampa, Florida

42 Ovarian antimüllerian hormone system: more complex than was thought

A. La Marca
Modena, Italy

FERTILITY AND STERILITY: 50 YEARS AGO TODAY

44 Original investigations into the effects of testicular biopsy

M. Kathrins
Boston, Massachusetts

ORIGINAL ARTICLES

ANDROLOGY

46 Sperm chromatin structure assay high DNA stainability sperm as a marker of early miscarriage after intracytoplasmic sperm injection

 E. Jerre, M. Bungum, D. Evenson, and A. Giwercman
Malmö, Sweden; and Brookings, South Dakota

High DNA stainability, as determined by sperm chromatin structure assay, is a marker of increased risk of early miscarriage in intracytoplasmic sperm injection pregnancies.

54 Sperm DNA fragmentation and recurrent pregnancy loss: a systematic review and meta-analysis

 D. B. McQueen, J. Zhang, and J. C. Robins
Chicago, Illinois

Sperm DNA fragmentation is elevated in male partners of women with recurrent pregnancy loss compared with fertile control women.

61 Array-based DNA methylation profiling reveals peripheral blood differential methylation in male infertility

 S. Sarkar, K. M. Sujit, V. Singh, R. Pandey, S. Trivedi, K. Singh, G. Gupta, and S. Rajender
Lucknow, Varanasi, New Delhi, India; and Oxfordshire, United Kingdom

In a genomewide methylation array on peripheral blood DNA from oligo/asthenozoospermic infertile patients and normozoospermic fertile controls, we found 329 differentially methylated CpG spots that correlate with infertility.

ASSISTED REPRODUCTION

73 Low antimüllerian hormone (AMH) is associated with decreased live birth after in vitro fertilization when follicle-stimulating hormone and AMH are discordant

 S. Ligon, M. Lustik, G. Levy, and B. Pier
Tripler, Hawaii

Low AMH (<1 ng/mL) with normal FSH is associated with decreased live birth and higher cycle cancellation compared with normal AMH and elevated FSH (>10 mIU/mL) in women undergoing IVF.

Neonatal outcomes of live births after blastocyst biopsy in preimplantation genetic testing cycles: a follow-up of 1,721 children

H. He, S. Jing, C. F. Lu, Y. Q. Tan, K. L. Luo, S. P. Zhang, F. Gong, G. X. Lu, and G. Lin
Changsha, People's Republic of China

Blastocyst biopsy may not add additional risk to neonatal outcomes when compared with controls.

Intrauterine injection of human chorionic gonadotropin before embryo transfer can improve in vitro fertilization-embryo transfer outcomes: a meta-analysis of randomized controlled trials

M. Gao, X. Jiang, B. Li, L. Li, M. Duan, X. Zhang, J. Tian, and K. Qi
People's Republic of China

This meta-analysis reveals that infertile women treated with 500 IU hCG within 15 minutes before ET may achieve better IVF-ET outcomes.

Effect of GnRH agonist and letrozole treatment in women with recurrent implantation failure

N. Steiner, G. Shrem, S. Tannus, S. Y. Dahan, J. Balayla, A. Volodarsky-Perel, S.-L. Tan, and M. H. Dahan
Montreal, Quebec, Canada

In patients with unexplained recurrent implantation failure, treatment for 2 months with GnRH agonist and letrozole before embryo transfer may improve live birth rates.

Factors associated with early in vitro fertilization treatment discontinuation

B. S. Bedrick, K. Anderson, D. E. Broughton, B. Hamilton, and E. S. Jungheim
St. Louis, Missouri; and Seattle, Washington

Women without in vitro fertilization (IVF) insurance coverage, African-American women, and older women with poor prognoses were most likely to discontinue IVF treatment and to have a longer time to return.

EARLY PREGNANCY

Ectopic pregnancy and outcomes of future intrauterine pregnancy

M. Chouinard, M.-H. Mayrand, A. Ayoub, J. Healy-Profitós, and N. Auger
Montreal, Quebec, Canada

Women with ectopic first pregnancies have an increased risk of adverse birth outcomes during subsequent intrauterine pregnancies, including preterm birth, low birth weight, cesarean delivery, placental abruption, and placenta previa.

EPIDEMIOLOGY

120 Impact of female daily coffee consumption on successful fertility treatment: a Danish cohort study

 J. Lyngsø, U. S. Kesmodel, B. Bay, H. J. Ingerslev, A.-M. Nybo Andersen, and C. H. Ramlau-Hansen
Aarhus, Herlev, Horsens, Aalborg, and Copenhagen, Denmark

Low-to-moderate female coffee consumption may not be detrimental to successful medically assisted reproduction treatments.

130 Health of adults aged 22 to 35 years conceived by assisted reproductive technology

J. Halliday, S. Lewis, J. Kennedy, D. P. Burgner, M. Juonala, K. Hammarberg, D. J. Amor, L. W. Doyle, R. Saffery, S. Ranganathan, L. Welsh, M. Cheung, J. McBain, S. J. C. Hearps, and R. McLachlan
Parkville, Clayton, Melbourne, and Richmond, Victoria, Australia; and Turku, Finland

A study of vascular, cardiometabolic, growth, and respiratory health of adults conceived by assisted reproduction (ART) compared with non-ART controls provides no evidence of adverse long-term effects of ART.

GYNECOLOGY

140 Medications for pain relief in outpatient endometrial sampling or biopsy: a systematic review and network meta-analysis



A. M. Abbas, A. Samy, A. El-Naser Abd El-Gaber Ali, M. M. Khodry, M. A. M. Ahmed, M. I. El-Rasheedy, K. M. Abdallah, A.-E. Mohammed, W. H. Abdelbaky, O. K. Raslan, M. A. Badawy, and H. H. Elktatny
Assiut, Cairo, and Qena, Egypt

Lidocaine spray is the most effective medication for pain relief during endometrial biopsy, while naproxen sodium is the most effective one during endometrial aspiration.

REPRODUCTIVE ENDOCRINOLOGY

149 Associations of different molecular forms of antimüllerian hormone and biomarkers of polycystic ovary syndrome and normal women



M. L. Wissing, A. L. Mikkelsen, A. Kumar, B. Kalra, S. E. Pors, E. M. Flachs, and C. Y. Andersen
Køge and Copenhagen, Denmark; and Webster, Texas

Serum levels of AMH isoforms were significantly higher in women with PCOS compared with control women. The relative distribution of AMH isoforms did not differ between women with PCOS and control women.

156 **Reproductive history of patients with hereditary 1,25-dihydroxyvitamin D-resistant rickets**
D. Tiosano and Y. Weisman
Haifa and Tel Aviv, Israel
Vitamin D receptor is expressed throughout the organs of reproduction, suggesting a role for vitamin D in reproduction.

177 **A case of obstructed hemivagina and ipsilateral renal anomaly syndrome complicated with pyometra: tips and tricks for laparoscopic hemihysterectomy**
K. Huseyin, T. S. Lale, Y. Burak, K. Tolga, K. Pinar, and S. D. Kerem
Istanbul, Turkey



Obstructed hemivagina and ipsilateral renal anomaly syndrome is characterized by the triad of uterovaginal duplication, obstructed hemivagina, and ipsilateral renal agenesis. Understanding the nature of the disease is of paramount importance for successful management.

REPRODUCTIVE SURGERY

162 **Unified diagnostic criteria for chronic endometritis at fluid hysteroscopy: proposal and reliability evaluation through an international randomized-controlled observer study**



E. Cincinelli, A. Vitagliano, A. Kumar, R. B. Lasmar, S. Bettocchi, and S. Haimovich, for the International Working Group for Standardization of Chronic Endometritis Diagnosis
Bari and Padua, Italy; Jaipur, India; Brazil; and Barcelona, Spain

We propose a series of hysteroscopic diagnostic criteria for chronic endometritis in women of reproductive age. Our randomized-controlled observer study found a positive impact of our criteria on physicians' ability to recognize chronic endometritis.



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VIDEOS

174 **Tilapia fish skin as a new biologic graft for neovaginoplasty in Mayer-Rokitansky-Kuster-Hauser syndrome: a video case report**

M. T. Pinto Medeiros Dias, E. M. Lima Júnior, A. P. Negreiros Nunes Alves, A. P. Monteiro Bilhar, L. C. Rios, B. A. Costa, E. S. Rocha Matos, A. C. Venancio, Z. V. Bruno, M. Odorico de Moraes Filho, and L. R. Pinheiro Sobreira Bezerra
Fortaleza, Ceará, Brazil



Use of Nile tilapia skin as a scaffold for the proliferation of new vaginal epithelium offered, to this patient, a successful anatomic and functional neovagina by means of a simple, safe, easy, effective, quick, and minimally invasive procedure.

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