EDITORIAL
HOT TOPICS IN FEMALE INFERTILITY

Female infertility and assisted reproductive technology

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We are proud to announce the publication of a special issue of Panminerva Medica entirely dedicated to the thematic area of female infertility with a particular emphasis on assisted reproductive technology (ART).

Worldwide approximately 8-12% of the individuals willing to conceive are unable to do so, with the highest prevalence in Eastern Europe, North Africa, Middle East, Oceania, and Sub-Saharan Africa.1 Notably, the USA, Canada, all European Union countries, and a few transitional and developed Asian countries have a total fertility rate below replacement level.1 Female factors, alone or combined with male factors, contribute to approximately 70% of reported infertility cases.

Female infertility is a disease of the reproductive system, caused primarily by female factors including ovulatory disorders, diminished ovarian reserve, anatomical, endocrine, genetic, functional or immunological abnormalities of the reproductive system, chronic illness, and sexual conditions incompatible with coitus.2 It affects women of reproductive age (15-49 years), who are unable to become or remain pregnant after twelve months or more of unprotected intercourse. The psychosocial consequences of female infertility are severe, including the tendency to blame women for the inability to conceive leading to stigmatization, isolation, neglect, intimate partner violence and polygamy.3 The prevention and management of female infertility is an integral component of comprehensive sexual and reproductive health services that are needed to attain a sustainable development goal.

ART has become an integral element of care for many women suffering from infertility over the last forty years.4 ART comprises all interventions that include the in vitro handling of both human oocytes and sperm or of embryos for the purpose of reproduction. ART includes, but is not limited to, in-vitro fertilization (IVF) and embryo transfer, intracytoplasmic sperm injection (ICSI), embryo biopsy, preimplantation genetic testing (PGT), and gamete and embryo cryopreservation. Data from the International Committee for Monitoring Assisted Reproductive Technologies (ICMART) between 2008 and 2010 report over four million ART treatments worldwide,5 most of which using ICSI as the fertilization method.6 Remarkable developments occurred in ART over the last decades, which substantially improved delivery rates from 26% in the 90’s to about 40% nowadays.7

In Europe and the USA, over 2% of all infants born result from ART treatments,8 and a conservative estimate indicates that worldwide over 8 million babies were born from ART.9 However, the age of the population seeking ART is increasing steadily as both women and men are postponing childbearing. Aging couples, in turn, poses enormous challenges for clinicians and researchers alike as female age is the most crucial factor for pregnancy success, both natural and assisted.

Panminerva Medica, “Hot Topics of Female Infertility”, contains the seminal work of 36 renowned clinicians and researchers of 19 Institutions from eight countries on four continents. In ten chapters, authoritative reviews and original articles dissect from a multitude of angles some of the most interesting and debatable topics in female infertility.
and ART. The articles’ collection has a broad appeal and includes clinically relevant topics for health care providers. The influence of body mass index on female infertility and pregnancy outcomes, the novel aspects on diagnosis of management of women with low prognosis in ART (the POSEIDON criteria), the advances in ovarian stimulation (OS) in the era of quality management, and the novel methods for ovulation trigger and luteal phase support are covered in great detail. Furthermore, this special issue includes topics that have attracted much attention lately, such as the routine use of elective embryo freezing and transfer in subsequent ART cycles, as well as the application of PGT. Equally important is the original data on the impact of female age on embryo euploidy, and the novel tool helping counsel women who delay pregnancy. State-of-art insightful reviews with a look into the future examine the pathophysiology of chemotherapy-induced ovarian damage, the importance of mitochondria in reproduction, and the application of pharmacogenomics for tailoring controlled ovarian stimulation.

We recommend this special issue to clinicians involved in the management of infertile couples, including reproductive endocrinologists, gynecologists, embryologists, and reproductive specialists. Also, students and researchers in the biological and medical sciences interested in following the exponential growth in knowledge involving female infertility and ART might greatly benefit from this collection of articles. We hope our readers will appreciate this special issue of Panminerva Medica and share our excitement in the study of female infertility and ART.

References


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