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How introduction of unproven new treatment modifications to IVF has negatively affected treatment outcomes around the world

Assisted Reproductive Technology (ART) has undergone considerable changes over the last decade, with consequences on ART outcomes in different regions of the world being unknown. We conducted a systematic review of published national and regional ART registry data to assess how changes in clinical practice between 2004 and 2013 have impacted outcomes in Australia and New Zealand, Canada, Continental Europe, the United Kingdom (U.K.), Japan, Latin America, and the United States (U.S.). The data reflect 7,079,145 total ART cycles utilizing both fresh and previously cryopreserved embryos from autologous oocytes that resulted in 1,454,724 live births. This review focused on the following measures: ART cycle volume, use of cryopreserved embryos, single embryo transfer (SET), live birth rates in fresh and frozen-thawed cycles, and neonatal outcomes in recent years.

SETs and utilization of frozen-thawed embryos increased worldwide over the study period. In 2012 SET utilization in all ART cycles was highest in Japan and Australia/New Zealand (82.6% and 76.3% respectively) and lowest in Latin America (16.0%). While gradual improvements in live birth rates were observed in most regions, some demonstrated declines. By 2012-2013, fresh cycle live birth rates were highest in the U.S. (29%) and lowest in Japan (5%). In Japan, the observed decline in fresh cycle live birth rate coincided with transition to minimal stimulation protocols, transfer of frozen-thawed rather than fresh embryos, and implementation of an SET policy. Similarly, implementation of an SET policy in parts of Canada was followed by a decline in fresh cycle live birth rate. Increasing live birth rates in frozen-thawed embryo cycles, seen all over the world, partially compensated for declines in fresh ART cycles. During 2012-2013 Australia/New Zealand and Japan reported the lowest multiple delivery rates of 5.6% and 4% respectively while the US had the highest of 27%. In recent years, preterm delivery rates in all regions ranged between 9.0% to 16.6% for singletons, 53.9% to 67.3% for twins, and 91.4% to 100% for triplets and higher order multiples. Inconsistencies in the way neonatal outcome data are presented by various registries, made comparison between regions difficult. ART practices are characterized by outcome differences between regions. International consensus on the definition of ART success, which accounts for perinatal outcomes, may help to standardize worldwide ART practice and improve outcomes.

Risk-screening algorithm for young women to detect premature ovarian senescence at younger ages

As fertility preservation of ovarian function prior to chemo-toxic and radiation therapies and for social indications is rapidly increasing, the association of premature ovarian senescence with other medical conditions has been widely overlooked. Statistical associations allow the identification of young high-risk females, who based on serial monitoring with age-specific anti-Müllerian hormone (AMH) and/or other ovarian reserve (OR) parameters, can be defined as either deviating from normal age-specific OR curves or not. Those confirmed to deviate can be counseled at still young ages when fertility preservation techniques are more efficient and, therefore, more cost-effective. As only a minority of women, destined to develop premature ovarian senescence, will, likely, be identifiable at young ages, expansion of prospective risk screening to low risk populations can be explored once proven cost-effective in high-risk populations. Such risk screening algorithms may be applied in the setting of family planning, prior to initiation of hormonal contraceptives, which induce artificial cyclicality thereby masking development of menstrual and ovarian pathology. Timely diagnosis of premature ovarian senescence is further hampered since AMH is suppressed by hormonal contraceptives, making the accurate assessment of OR more difficult. Early identification of girls and women at risk for developing premature ovarian senescence provides them with potential options of advancing pregnancies and/or pursuing fertility preservation at younger ages than is currently the practice.

Are frozen eggs really equivalent to fresh donor eggs?

Utilization of cryopreserved instead of fresh donor oocytes has rapidly increased in recent years. Whether treatment outcomes are comparable has, however, remained controversial. We reviewed national data on oocyte donation cycles performed in the U.S. during 2013-2014. More than 24% of initiated oocyte donation cycles used of previously cryopreserved oocytes. During this period live birth rates per embryo transfer were 44.0-47.1% with embryos produced from cryopreserved donor oocytes vs. 56.1-57.5% with embryos produced from fresh donor oocytes.

Use of cryopreserved donated oocytes may simplify logistics and lower costs per treatment cycle. Whether cryopreserved donor oocytes also lower costs per live birth is still undetermined since they result in lower live birth rates in comparison to fresh donor oocyte cycles. National data regarding the safety of donated oocytes, including miscarriage rates and neonatal health outcomes, are lacking. Currently available data are insufficient to claim equivalency between fresh and cryopreserved donor oocytes. Until sufficient data are available, patients should be advised about advantages and disadvantages of both methods of oocyte donation, and use of cryopreserved oocytes should be considered only with caution and appropriate informed consent. Since banking of oocytes established human oocytes as subjects of commercial trade, expanding use of frozen donor oocytes also challenges some basic ethical consideration, which have been at the basis of human oocyte donation since its inception.