Undergraduate Certificate in Surrogacy Parenting

Medical Procedures in Assisted Reproduction

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Assisted reproduction refers to the process of using medical procedures to achieve pregnancy when natural conception is not possible. It involves various techniques and methods that help individuals or couples overcome infertility issues and fulfill their desire to have children. In this course, we will explore the key terms and vocabulary related to medical procedures in assisted reproduction, specifically in the context of surrogacy parenting.

1. In Vitro Fertilization (IVF)

In vitro fertilization (IVF) is one of the most common assisted reproductive technologies (ART) used to help individuals or couples conceive a child. During IVF, eggs and sperm are combined in a laboratory dish to create embryos, which are then transferred to the uterus. This procedure bypasses the fallopian tubes, making it an effective option for individuals with tubal factor infertility, male factor infertility, or unexplained infertility.

IVF can be performed using the intended mother's eggs and sperm from the intended father, or donor eggs or sperm may be used if needed. The success rate of IVF varies depending on various factors such as the woman's age, the quality of the embryos, and the underlying cause of infertility.

2. Intracytoplasmic Sperm Injection (ICSI)

Intracytoplasmic sperm injection (ICSI) is a technique used in conjunction with IVF to treat male infertility issues. During ICSI, a single sperm is injected directly into an egg to facilitate fertilization. This method is particularly beneficial for couples dealing with severe male factor infertility, such as low sperm count or poor sperm motility.

ICSI has significantly improved the success rates of IVF for couples struggling with male infertility. However, it is essential to assess the quality of the sperm before proceeding with ICSI to ensure the best chances of fertilization and embryo development.

3. Gamete Intrafallopian Transfer (GIFT)

Gamete intrafallopian transfer (GIFT) is an assisted reproductive technique that involves transferring both eggs and sperm into the fallopian tubes to facilitate fertilization inside the woman's body. Unlike IVF, where fertilization occurs in a laboratory dish, GIFT allows fertilization to take place naturally within the fallopian tubes.

GIFT may be considered for couples with unexplained infertility or those who prefer a more natural approach to assisted reproduction. However, GIFT is less commonly used today due to the success of IVF

and other ART procedures that offer higher success rates and greater control over the fertilization process.

4. Zygote Intrafallopian Transfer (ZIFT)

Zygote intrafallopian transfer (ZIFT) is a variation of IVF where fertilized embryos (zygotes) are transferred into the fallopian tubes instead of the uterus. This procedure combines aspects of both IVF and GIFT, allowing for controlled fertilization in a laboratory setting followed by the transfer of embryos into the fallopian tubes for implantation.

ZIFT is typically recommended for individuals or couples with specific fertility issues that may benefit from the direct placement of embryos into the fallopian tubes. While ZIFT offers slightly higher success rates than GIFT, it is less commonly used compared to traditional IVF procedures.

5. Preimplantation Genetic Diagnosis (PGD)

Preimplantation genetic diagnosis (PGD) is a specialized technique used during IVF to screen embryos for genetic disorders before implantation. PGD involves testing a small number of cells from each embryo to identify any genetic abnormalities or chromosomal defects that may affect the health of the future child.

PGD is particularly beneficial for individuals or couples with a family history of genetic disorders, advanced maternal age, or recurrent pregnancy loss. By selecting embryos free of genetic abnormalities, PGD can help improve the chances of a successful pregnancy and reduce the risk of passing on inherited diseases to the offspring.

6. Cryopreservation

Cryopreservation is the process of freezing and storing eggs, sperm, or embryos for future use in assisted reproduction. This technique allows individuals or couples to preserve their fertility by storing reproductive cells or embryos until they are ready to conceive a child. Cryopreservation is commonly used in conjunction with IVF to preserve excess embryos for future transfer cycles.

Cryopreservation offers several benefits, including the ability to preserve fertility before undergoing cancer treatment, delaying childbearing for personal or medical reasons, or preserving fertility for individuals with age-related infertility. However, it is essential to consider the success rates and limitations of cryopreserved reproductive cells or embryos when planning for future fertility treatments.

7. Assisted Hatching

Assisted hatching is a procedure used during IVF to help embryos implant in the uterine lining more effectively. During assisted hatching, a small hole is created in the outer layer of the embryo (the zona pellucida) to facilitate the embryo's emergence and attachment to the uterus. This technique can be beneficial for individuals with previous IVF failures or older embryos with a thick zona pellucida.

Assisted hatching is typically performed on day three or day five embryos before transfer to the uterus. While this procedure may improve the chances of successful implantation and pregnancy, it is essential to consider the risks and benefits of assisted hatching based on individual fertility factors and treatment goals.

8. Surrogacy

Surrogacy is a form of assisted reproduction where a woman (the surrogate) carries a pregnancy on behalf of another individual or couple (the intended parents). Surrogacy may be used by individuals or couples who are unable to carry a pregnancy due to medical reasons, or same-sex couples who wish to have a biological child using assisted reproduction techniques.

There are two main types of surrogacy: traditional surrogacy, where the surrogate's egg is used for conception, and gestational surrogacy, where the surrogate carries an embryo created using the intended parents' or donor's egg and sperm. Surrogacy involves legal agreements, medical screenings, and psychological evaluations to ensure the well-being of all parties involved.

9. Donor Egg or Sperm

Donor egg or sperm may be used in assisted reproduction when the intended parent(s) are unable to produce viable gametes for conception. Donor egg or sperm can be obtained from anonymous or known donors through fertility clinics or donor banks. This option allows individuals or couples to achieve pregnancy using a donor's genetic material while still experiencing pregnancy and childbirth.

Donor egg or sperm may be used in conjunction with IVF, ICSI, or other ART procedures to facilitate fertilization and embryo development. It is essential to consider the legal, ethical, and emotional implications of using donor gametes in assisted reproduction, as well as the impact on the child's identity and family dynamics.

10. Embryo Donation

Embryo donation is a form of assisted reproduction where unused embryos from IVF cycles are donated to individuals or couples in need of donor embryos to achieve pregnancy. Embryo donation allows individuals or couples to experience pregnancy and childbirth using embryos created by another couple undergoing IVF treatment.

Embryo donation offers a cost-effective alternative to using donor eggs or sperm, as it eliminates the need for separate gamete donors. However, it is essential to consider the legal and ethical considerations of embryo donation, including issues of consent, parental rights, and the disclosure of genetic origins to the resulting child.

11. Assisted Reproductive Technology (ART)

Assisted reproductive technology (ART) refers to a range of medical procedures and technologies used to assist individuals or couples in achieving pregnancy. ART encompasses techniques such as IVF, ICSI, GIFT, ZIFT, PGD, and cryopreservation, among others. These methods are designed to overcome infertility issues and help individuals or couples conceive a child through assisted means.

ART has revolutionized the field of reproductive medicine, offering new possibilities for individuals struggling with infertility. While ART procedures have significantly improved success rates in assisted reproduction, they also raise ethical, legal, and social considerations that must be carefully addressed to

ensure the well-being of all parties involved.

Conclusion

In conclusion, understanding the key terms and vocabulary related to medical procedures in assisted reproduction is essential for individuals or couples considering surrogacy parenting or other forms of assisted reproduction. By familiarizing themselves with the various techniques and methods available, individuals can make informed decisions about their fertility options and take steps towards achieving their dream of having children. Through the utilization of IVF, ICSI, GIFT, ZIFT, PGD, cryopreservation, assisted hatching, surrogacy, donor egg or sperm, embryo donation, and ART, individuals can overcome infertility challenges and embark on the journey to parenthood with confidence and hope.