CHAPTER - IV
SURROGACY – TYPES AND TECHNIQUES

Infertility is a source of social and psychological suffering for both men and women, which can place great pressure on the relationship within the couple. It is a signal of the disappointment of the body. It affects across the gender but the social burden of infertility tends to be greater among women. It brings logic of unsuccessful personhood among women. To get rid of the problem of infertility, people need help of Assisted Reproductive Technology (ART). ART refers to all technology where gametes are manipulated outside the body. Reproductive technologies have split the process of procreation. It is true that procreation is the place of social control and work out of power by family structures as well as the state through biomedical institutions.

The history of the remarkable development of technology in the field of medicine has been mainly seen in the latter half of the 20th century. Firstly, by the advent of contraceptive technologies, it made likely to have sex without procreation. Thereafter, medical research has made possible something through which within laboratory a woman could conceive a child without sexual intercourse. And at the same time, it has dense our perceptive of the relationship between women and reproduction.

Surrogacy is a variant of ART. It is a form of third party reproduction in which woman agrees to create and/or maintain a pregnancy for another person or couple, typically for monetary consideration.[1] The concept of Surrogate Motherhood is a fortunate and revolutionary source of hope for infertile couples. Out of all methods of ART, surrogacy is considered as most efficient method to overcome infertility by the infertile couples, single parent, gay and lesbian persons and to procreate a genetically linked child. Intended parents may seek a surrogacy agreement when pregnancy is medically also become impossible, pregnancy risks present an unacceptable danger to the mother's health, to avoid manifestation of a genetic abnormality, or is a same-sex couple's preferred method of procreation.[2]

According to Rule 1.2.33 of the ICMR, Guidelines 2005,

"Surrogacy is an arrangement in which a woman agrees to carry a pregnancy that is genetically unrelated to her and her husband, with the intention to carry it to term and hand over the child to the genetic parents for whom she is acting as surrogate".

Again according to Section 2(t) of the ART Bill, 2008, section 2(aa) of the ART Bill 2010 and Section 2(zq) of the Surrogacy (Regulation) Bill, 2014,

"Surrogacy is an agreement in which a woman agrees to a pregnancy, achieved through assisted reproductive technology, in which neither of the gametes belong to her or her husband, with the intention to carry it for term and hand over the child to the person or persons for whom she is acting as a surrogate".

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1 Dr. S. Bhat & S. R. Sastry, "Legal and Policy Challenges to Surrogacy in India" in B.S. Bhat (ed), *Reflections on Medical Law and Ethics in India*, Eastern Law House 81 (2016)

2 Available at: www.dolphnsix.com/news/India-prpose-commercial-surrogacy-ending-lucrative

This agreement only refers to the gestational form of the surrogacy, where the surrogate mother is not biologically related to the child, she only provides her womb in rents. But under Section 2(zd) of the Surrogacy (Reg.) Bill 2020,

"Surrogacy means a practice whereby one woman bears and gives birth to a child for an intending couple with the intention of handling over such child to the intending couple after the birth".

Surrogacy Agreement is a contract between the person availing assisted reproductive technology and the surrogate mother.[3] There are mainly two parties, one who wishes to beget a child with the help of surrogate and bring up the child after his or her birth, known as Commissioning Parents or Intended Parents. And other party is a woman, who agrees to conceive and carry child to the full term and relinquish the parental rights over the child after birth, known as Surrogate Mother. As per the definition provided in Section 2(g) of the ART (Reg.) Bill, 2010,

"Commissioning Parents/couples/individuals means parents, couples or individual respectively, who approach an ART Clinics or ART bank for providing a service that the ART Clinic or the ART bank authorized to provide".

But under section 2(h) of the ART (Reg.) Bill, 2014,

"Commissioning Couple means an infertile married couple, who approach an assisted reproductive technology clinic or assisted reproductive technology bank for obtaining service's that the ART Clinic or ART bank authorized to provide".

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[3] Section 2(v) of the Assisted Reproductive Technology (Regulation) Bill, 2008, Section 2(cc) of the Assisted Reproductive Technology (Regulation) Bill, 2010 and Section 2(g) of the Surrogacy (Regulation) Bill, 2014

And Section 2(u) of the ART (Reg.) Bill, 2008, Section 2(bb) of the ART (Reg.) Bill, 2010

"Surrogate Mother means a woman who is citizen of India and is resident of India, who agrees to have an embryo generated from the sperm of man, who is not her husband and oocyte of another women implanted in her to carry the pregnancy to viability and deliver the child to the couple/ individual that had asked for surrogacy.

But section 2(zr) of the ART (Reg.) Bill, 2014

"Surrogate Mother means a woman who is citizen of India and is resident of India, who agrees to have an embryo generated from the sperm of man, who is not her husband and oocyte of another women implanted in her to carry the pregnancy to viability and deliver the child to the couple individual that had asked for surrogacy.

And According to section 2(zg) of the of the Surrogacy (Reg.) Bill 2020,

"Surrogate mother means a woman who agrees to bear a child (who is genetically related to the intending couple or intending woman) through surrogacy from the implementation of embryo in her wombs and fulfills the conditions provided under the section 4 (iii)(b)".

4.1. Types of Surrogacy

Surrogacy is a viable solution to fulfill the desire of parenthood. But, considering the complexities arises from it now it becomes a genuine and ethical challenge. So the way of arrangement of surrogacy is a most important matter which to be discussed to know about suitability and convenience of the parties involved in the

surrogacy arrangement. The arrangement for surrogacy based on mainly two factors, one is genetic contribution and another is monetary contribution.

Broadly, considering the monetary contribution involved in the surrogacy arrangement, surrogacy arrangements are divided into two types – Altruistic Surrogacy and Commercial Surrogacy.

4.1.1. Altruistic Surrogacy or Non Commercial Surrogacy

Altruistic Surrogacy or Non Commercial Surrogacy refers to surrogacy arrangements in which the surrogate mother is not paid any financial benefit and is motivated by the humanitarian desire to help another to have a child of their own. It deals only with affection and care as consideration It is a condition of surrogacy arrangements, where the surrogate would not receives any monetary compensation for her service or for the delivery of the child to the commissioning parent(s). Nevertheless, it is the fact that all other costs related to the surrogacy service and birth of the surrogate child are to be paid by the intended parents. The arrangement of altruistic surrogacy is generally seen when surrogates are close relatives or friends to the parents.

Section 2(b) of the Surrogacy (Reg.) Bill, 2020 provides,

"altruistic surrogacy means the surrogacy in which no charges, expenses, fees, remuneration or monetary incentives of whatever nature, except medical expenses incurred on surrogate mother and the insurance coverage for the surrogate mother, are given to the surrogate mother or her dependents or her representative".

4.1.2. Commercial Surrogacy

Commercial Surrogacy is a form of surrogacy in which surrogate mother is compensated for her services (to carry a child to maturity in her womb to a full term) beyond reimbursement of medical expenses. It refers to surrogacy arrangements in which include payment of money or other benefits along with medical expenditure to surrogate mother. It is usually resorted to by well off infertile couples who can afford the cost involved in order to complete their dream of being parents. This type of surrogacy is legal in various countries including India. However, the proposed Surrogacy (Reg.) Bill, 2020 seeks to ban commercial surrogacy in India. Commercial Surrogacy is sometimes emotionally charged by potentially offensive terms 'wombs for rent', 'outsourced pregnancies' or 'baby farms'.[4]

Section 2(f) of the Surrogacy (Reg.) Bill, 2020 provides,

"commercial surrogacy means commercialization of surrogacy services or procedures or its component services or procedures including selling or buying of human embryo or trading in the sale or purchase of human embryo or gametes or selling or buying or trading the services of surrogate motherhood by way of giving payment, reward, benefit, fees, remuneration or monetary incentive in cash or kind, to the surrogate mother, except the medical expenses incurred on surrogate mother and the insurance coverage for the surrogate mother".

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4 *Baby Manji Yamada v Union of India* AIR 2009 SC 84; (2008)13 SCC 518.

On the basis of involvement of genetic material to create embryo, surrogacy may be again divided into two types – Traditional surrogacy and Gestational Surrogacy.

4.1.3. Traditional Surrogacy

Traditional surrogacy is a surrogacy arrangement wherever the surrogate mother, herself contribute genetic material to the surrogate child. In this type of surrogacy the eggs of surrogate mother and the sperm of the commissioning husband are used in conception of the child, and thereby making her the genetic and biological mother of the child. This type of surrogacy is also known as Straight or Partial Surrogacy. In this type arrangement, the child may be conceived via sexual inter-course, artificial insemination using fresh or frozen sperm or impregnated via intrauterine insemination, of the intended father in order to become pregnant. Therefore, such child is genetically identical with the husband of the commissioning couple only, not with the wife. And after the birth of the child, the surrogate mother will relinquish all her parental rights and delivered the child to the intended parents.

Traditional surrogacy is a financially affordable option as compared to gestational surrogacy which involves the use of in vitro fertilization process.[5] Presently, traditional surrogacy is not in practice, due to severe legal and emotional complexities.

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[5] Ghena Vaishnavi and Navneet Takkar, *Surrogacy: Medico-Legal Issues* 30 (Jaypee Brothers Medical Publishers, New Delhi, 1st Ed. 2015).

4.1.3. Gestational Surrogacy

In Gestational Surrogacy, the child is not biologically related to the surrogate mother, who is often referred as a gestational carrier. It is referred by couple who wish for a biological relationship to their child. Here, the embryo is created via in vitro fertilization (IVF), using the eggs and sperm of the intended parents or donors, and is then transferred to the surrogate, who has assented to act as a surrogate. It is also known as Total Surrogacy or Full Surrogacy. In this surrogacy, fertilized embryo of the intended parents is implanted into a woman body. It is the most common type of surrogacy today. In most cases, at least one intended parent is genetically related to the child. In this type of surrogacy, embryo will be created from the egg and sperm of the intended parents or from a donated egg and sperm of the intended father or from the egg of the intended mother and donor sperm or from using donor egg and donor sperm, after that, the embryo will be transferred to the surrogate.

Gestational surrogacy has given a new life to couples who are recessive carriers of various genetic diseases like cystic fibrosis, sickle cell anemia, thalassemia, tay-sachs disease, various mitochondrial disease. In various genetic disorders, diseased gene is manifested in a recessive form: when two recessive carriers of a particular genetic disorder carry out a pregnancy, the chances of the child getting genetic disorder increases.[6] To protect a child from various life- threatening recessive genetic disorders, and to deliver a disease free baby, the intended couple can go for gestational surrogacy.

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[6] S. Kaur, "Surrogacy: The Need, Usage, Misuse, and the much Rectification Step – The Proposed Surrogacy Bill 2016" 1 CTDT 47 (2017)

4.2. Techniques and Practices for Surrogacy

Earlier, to coupe out with the problem of childlessness, the natural surrogacy was the only means of helping to some infertile women to have children. But after the advancement in the field of medical science and technology in human reproduction, gradually the place of natural surrogacy was replaced by various methods of assisted reproductive technology.

To During the visit and interaction of the researcher to understand the scientific aspects of ART in Assam, it was found that the Institute of Human Reproduction, Bharalumukh, Guwahati is the pioneer, where infertility treatment has been practicing since 1980, followed by the Pratiksha Hospital, Borbari, Hengerabari, Guwahati since 2006 and by the Dispur Polyclinic IVF Centre, Dispur since 2011.

Dr. Deepak Goenka, Director of the Institute of Human Reproduction, said, "Though at the beginning, cases were lesser and due to lack of development in the field medical science and technology, the medical personnel and hospitals were unable to help the patients came for treatment. But with the passes of times gradually the numbers of cases are increasing day by day; presently the Institute of Human Reproduction is treating approximately 100 patients per month."

ART does not include where only spermatozoa are manipulated like intrauterine insemination (IUI). Artificial inseminations (AI), in vitro fertilization (IVF) of surrogate mother are most common, useful and popular methods adopted by infertile couples for having children through surrogacy. An artificial insemination is

more socially acceptable than natural surrogacy. [7] In IVF technique, the egg of infertile women and the sperm of husband are fertilized in vitro i.e. in a petri dish. After that the embryo is generated with the help of the IVF technique and the embryo transferred (ET) into the womb of the surrogate mother to have their genetic children. But there is an ever increasing list of various procedures, such as[8] –

- Gamete intrfallopian transfer (GIFT)
- Pronucleate or Zygote intra-fallopian transfer (PROT, ZIFT)
- Intracytoplasmic sperm injection (ICSI)
- Round nuclei injection (ROSNI) or spermatid injection
- Assisted hatching

During the visit and interaction of the researcher with Dr. Deepak Goenka, Director, the Institute of Human Reproduction, has came to know that Intra-uterine inseminations (IUI), Oocyte Donation (OD), Frozen Embryo Transfer (FET), Pre-implementation Genetic Diagnosis (PGD), Pre-implementation Genetic Screening (PGS) and Oocyte Cryopreservation are practicing thereon.

During interaction, in Pratiksha Hospital, Dr. Arup Deka, Deputy Medical Superintendent stated that IVF, ICSI and IUI, Testicular Epididymal Sperm Aspiration (TESA), Hystero Salpingo Graphy (HSG), Saline Sono Hysterography (SSHG), Assisted Laser Hatching of Embryo, Hysteroscopy Diagnostic and Operative, Operative and Diagnostic Laparoscopy, Cryopreservation of Gametes,

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[7] Supra note 5, p.33

[8] Dr. MR Begum, "Assisted Reproductive Technology: Techniques and Limitations" available at http://www.researchgate.net/publication/270114969 (accessed on July 16, 2018)

Cryopreservation of Embryos, Cryopreservation of TESA specimen, Percutaneous Epididymal Sperm Aspiration (PESA) and Fertility preservation for Oncological conditions/social reasons are practicing thereon.

In Dispur Polyclinic IVF Center, Dr. Kankan Sarmah, Clinical Psychologist acknowledged that along with those Testicular Epididymal Sperm Extraction (TESE) and Physiological Intra-Cytoplasmic Sperm Injection (PICSI) are also being practiced there. He also said that among all these procedures, most commonly practiced procedures are IVF, ET and ICSI.

At the very outset, in any surrogacy process, the first step is to carefully consider whether the surrogacy is right for the person(s) seeking it. As becoming surrogate or a parent through surrogacy can be a long and emotional journey, and most importantly it is a big commitment for both the parties clubbed with various complexities.

For prospective surrogate, becoming a surrogate mother is a life-changing decision that can be extremely fulfilling with numerous challenges. As she requires to commit to another couple/individual for a long time, that may be 1(one) year or more to undergo medical and psychological evaluations and procedures. And the same way, for the prospective Intended Parents, there are many reasons to consider to growing his/her/their family through surrogacy as various risks are associated with it. For gestational commercial surrogacy, they have required financial and emotional investment to ensure that they have the resources to commit to surrogacy and

parenthood. To get a child through AI or IVF surrogacy, have to observe following procedures –

4.2.1. Counselling for Surrogacy

Counseling to both surrogate and intended parents is the first step before starting the journey of surrogacy. It is very important to know and gather knowledge about the challenges they will face while going through the process of surrogacy. Counseling is an imperative component of health checkup care and it ought to be take place previous to treatment begins. Preconception counseling mainly composed of psychological counseling, education, assessment, and support by a qualified fertility counselor to the prospective surrogate mother and intended parents. Traditionally Fertility counselors separately meet with the intended parents and the surrogate mother and finally with the both in a group session. In order to minimize the negative outcome for both the parties, fertility counselors give important and caring directions, instructions to them.

The prospective intended parents required to know the techniques by which a surrogate mother can achieve a pregnancy. The cost of the treatment, the chances of success of treatment, the chances of multiple pregnancies, the possibility that the child may be born with an abnormality or defect, are required to be discussed with the couple, the medical personal, the legal advisor and the surrogate mother.[9] The goal of the preconception counselling is helpful for the surrogate mother to simplify uncertainty, confusion and emotional tenses involves in surrogacy arrangements. Because her understanding about the entire process of surrogacy and terms and

[9] Supra note 5, p.33

conditions is very important to provide her informed consent, which will mentally prepare her to relinquish the child after birth. The medical risks associated with pregnancy, the possibility of caesarean section, co-operation of family members and a sense of bereavement when she gives away the baby to the intended parents are some of the important issues which need to be counseled to the surrogate mother.[10] A potential surrogate mother must carefully consider her likely emotional reactions to the developing to the developing child if the pregnancy is successful. The process of counselling is also essential if the treatment fails, as it may have deep effect on the surrogate mother and the intended parents in various aspects.

Besides these while the researcher visited and interacted with Dr. Deepak Goenka, Director of the Institute of Human Reproduction, Guwahati, he stated that the main responsibilities of the clinics conducting surrogacy are to look after the matter of financial arrangements between surrogate mother and the commissioning parents as mostly of surrogate mother are coming from poor socio-economic background, in case of commercial surrogacy and to ensure the voluntariness on humanitarian ground, in case of altruistic surrogacy.

Dr. Kankan Sarmah, Clinical Psychologist, Dispur Polyclinic IVF Centre, Ganeshguri, Guwahati stated that first of all, it is necessary to consider social risks associated with parties concerned in surrogacy and considering the emotional and mental status of surrogate mother as well as genetic couple, it necessary to provide counseling for both the parties. And he too said that along with counseling of surrogate

[10] Id.

mother and husband as well as genetic couple, clinics has also to deals with medical check-up of surrogate mother, periodical follow-up during entire pregnancy period and direction for good lifestyle during the pregnancy period to be followed by surrogate mother.

Section 46(6) of the ART (Reg.) Bill, 2014 provides,

"The ART Clinics shall provide professional counseling to the commissioning couple about all implications and chances of success of the ART procedures in the clinic in India and internationally, and shall also informing commissioning couple of the advantages, disadvantages and cost of the procedures, their medical side effects, risks including the risk of multiple pregnancy, the possibility of adoption, and any such other information which may help the commissioning couple arrive at a informed decision that would be most likely to be the best for the commission couple".

And the Surrogacy (Reg.) Bill, 2020 also provides for mandatory condition of written informed consent of the surrogate in the language she understands.[11] However, if the couple decided to avail the surrogacy service thereafter, the medical test for various diseases of the surrogate and commissioning couple is compulsory.

4.2.2. Medical test for Various Diseases

After completion of counselling both the prospective intended parent(s) and the prospective surrogate, are required to be medically examined for various diseases like diabetes, hepatitis B, hepatitis C, HIV/AIDS, polycystic ovarian syndrome (PCOS),

[11] Section 6

endometriosis, preeclampsia, thyroid and for all other communicable diseases. When a couple places their hopes of becoming biological parents upon a surrogate, they will invest a great deal of time, money and emotions. And hence it is the duty of the surrogate to give them their best chance at having a biological child. So, a woman to become a surrogate, along with physical screening also has to undergo psychological screening. In addition to these a surrogate mother also has to abstain from alcohol, drugs and smoking during pregnancy to give a healthy child.

The Assisted Reproductive Technologies (Regulation) Bill, 2014 provides conducting for medical test of various diseases of the infertile couples, surrogate women and gamete donors to avoid health risks to surrogate and surrogate children.[12]

4.2.3. Surrogacy Arrangement

This is a very significant stage in the procedure of surrogacy. After, all the parties concerned, knowing about the intention/fundamental terms of surrogacy procedure and conducting medical test for various diseases, decide to move forward together for surrogacy arrangement. Since in India, there is no binding law no surrogacy, the parties are legally bound only by surrogacy agreement. And to determine the legal enforceability of surrogacy agreement in India, the Indian Contract Act 1872[13] is being applied.

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[12] Section 46(1)

[13] Section 10 enumerates certain points that are essential for valid contracts like free consent, competency of the parties, lawful consideration and lawful object. Section 23 provides details of the lawful consideration and object in an agreement.

Surrogacy is a form of agreement between three or more parties which involves the intended parents, the surrogate, the gamete donor and the hospital concerned. The surrogacy arrangement is a very complex and sensitive agreement as there are more than one parent(s) involved. It provides that the surrogate agrees to relinquish all parental rights after delivering the child for a payment or other consideration. The infringement of any term of the valid contract leads to the contract being null and void.[14] If the court found that the agreement between the parties to be fraudulent or immoral or oppose to any public policy or where the consideration or object is not lawful or it contravenes the provision of any law in force, such agreement are void. However in relation to surrogacy in India, it is a great matter of concern that surrogacy agreement is not considered as immoral, it does not contravene any provisions of law as yet there is no specific law and considered as a noble profession in contrast to prostitution; even though, where open discussion on sex is a taboo.

The Assisted Reproductive Technologies (Regulation) Bill, 2014 states that surrogacy arrangement means an agreement between the commissioning couple availing of the assisted reproductive technology and the surrogate mother.[15] In case of international surrogacy arrangements, the intended parents have to make sure that the surrogacy agreement is enforceable in their country also. These agreements are much more complex as it has an impact over the nationality of the surrogate child. The proposed Surrogacy (Regulation) Bill, 2020 provides for possession of 'Certificate of

[14] Supra note 5, p.125

[15] Section 2(zs)

Essentiality' of the intending couple and the 'Certificate of Eligibility' of the surrogate to avail the services of surrogacy.[16]

4.2.4. Artificial Insemination

Conception by Artificial insemination has been practiced for long time; it was used mainly by married couples where the husband was infertile.[17] In traditional surrogacy, the woman carrying the fetus also supplies the egg to create the pregnancy and often results from Artificial insemination (AI) using a known sperm donor or unknown sperm donor. In AI, semen preparation of the male partner of the intended parents or the donor is done. By the help of this method, only the male partner can be genetically related to the child but the female genetic material is of the surrogate mother. It is a simple and low cost procedure, for which it is an acceptable option for surrogacy even in the era of advanced technology. The prepared semen is utilized for intrauterine insemination (IUI) of the surrogate mother for achieving a pregnancy.[18] In AI, couples are assured of complete confidentially and screening of donor semen is done for sexually transmitted infections. The surrogate mother usually undergoes ovulation stimulation and when the leading follicle is > 18mm on ultrasound, human chronic gonadotropin (hCG) injection is administered for follicle rupture.[19] IUI is usually performed after 34-46 hours of administering hCG injection or on

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[16] Section 4(b)

[17] JH Davis and DW Brown, "*Artificial Insemination B Donor(AID) And The Use Of Surrogate Mothers: Social And Psychological Impact*" 141(1) WJM 127 (1984), available at https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1021691/ (accessed on August9, 2018)

[18] Supra note 5, p.34

[19] Ibid.

documenting follicle rapture.[20] The AI is carried out using aseptic techniques and the procedure is performed in the dorsal position and the cervix is exposed using a speculum.[21] The preparation of spermatozoa is then withdrawn using a tuberculin syringe attached to an IUI catheter and then the catheter is then thread into the uterine cavity and the semen is injected gently.[22]

4.2.5. In-Vitro Fertilization (IVF) Surrogacy

IVF surrogacy is a process of combining egg of genetic mother and sperm of genetic father outside the woman body, instead of it is done in the laboratory and after that fertilized egg is implanted in to the body of the host mother i.e. surrogate mother. Before adopting the method of IVF Surrogacy, the intended couple, first have to decide whether both the parents can become genetic parents or will require ovum donation, sperm donation or both egg and sperm.

During the visit and interaction of the researcher with the Director of the Institute of Human Reproduction, he stated that as per ICMR's Guidelines, the use of close/distant kin as egg or sperm donor is not allowed, so, no clinic shall obtain sperm or oocyte donated by a relation or known of either parties seeking ART. For what authorized donors are available for oocyte donation and sperms are sourced from sperms banks registered under ICMR.

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[20] Id.

[21] Ibid.

[22] Ibid.

IVF surrogacy uses a third party "gestational surrogate" to carry the pregnancy when a patient is unable to carry a baby to term herself. It is an alternative for couples or individuals, when some women are medically unable to carry a child, but still produce healthy eggs. For some women, this is because they have an inborn problem with their uterus, or because it has been damaged by injury or disease, or removed by a hysterectomy. Besides these several unexplained pregnancy losses, diabetes, hypertension, cardio-vascular diseases are also reasons for choosing IVF surrogacy.

Gestational or IVF surrogacy has various options and the surrogate child may be related to the legal parents in following four ways, depending on whether the egg or the sperm, or both, are donated[23]—

i. Related to both parents (intended mother's egg and father's sperm): When the intended mother is unable to carry a pregnancy to full term and the embryo is created by using her egg and intended father's sperm, is carried by the surrogate mother. The surrogate chid born out of this option is genetically related to the intended couple.

ii. Related to legal mother (intended mother's egg and donor sperm): When the intended mother is unable to carry the pregnancy herself but she is able to give her egg and the intended father lacks viable sperm. Hence, the mother's egg and the donor sperm are fertilized in vitro and the embryo is transferred into the womb of the surrogate mother.

[23] Id.

iii. Related to legal father (donor egg and intended father's sperm): When the intended mother is infertile and cannot produce viable eggs, the donor egg along with intended father's sperm are fertilized in vitro.

iv. Unrelated to the intended parents (donor egg, donor sperm): when both the intended mother and intended father are unable to produce an embryo from their own egg and sperm. Then by using donated egg and donated sperm, an embryo created through IVF. The child born out of this option unrelated to legal or intended parents.

4.3. Steps involved in IVF Surrogacy

IVF Surrogacy mainly involves following steps- (a) Ovarian stimulation; (b) Preparation of the surrogate; (c) Ovum pickup; (d) ART for male factor infertility; (e) IVF of gametes; (f) Cryopreservation of embryos; (g) Embryo transfer into the womb of surrogate; (h)IVF success and failure; and (i) Complications of ART treatments.[24]

4.3.1. Ovarian stimulation

It is required for procurement of oocytes from the genetic mother; usually the intended mother, sometime an oocyte donor or surrogate will undergo ovarian stimulation. The goal of this step is to harvest as many mature eggs as possible from the woman's ovaries with the administration of hormone medications. The stimulation phase involves the injection of medications for 8-14 days, to induce the ovaries to produce many eggs. The medications stimulate two key hormones, namely Follicle Stimulating Hormone (FSH) and Lutenizing Hormone (LH). FSH stimulates follicles

[24] Supra note 5, p.37

to develop during the menstrual cycle. FSH injections maintain higher levels of FSH in the body and allowing the ovaries to produce more mature eggs. After ovarian stimulation, just before ovulation, higher levels of estrogen trigger a spike in LH, which causes ovulation.

4.3.2. Preparation of the surrogate

As IVF surrogate pregnancy is not conceived naturally, so it is need for hormone supplementation in order to prepare the uterus. So surrogate is required to take medications in order to coordinate the menstrual cycle with that of the egg donor. This ensures that the surrogate's uterus is in position and equipped to accept the embryos. By providing two important hormones, estrogen and progesterone in the uterus of the surrogate, prepare her for pregnancy. The combination of these two hormones maximizes the chances of pregnancy and helps to prevent miscarriage.

4.3.3. Ovum pickup

In this step, the intended mother or oocyte donor undergoes ovum pickup, which is a minor procedure carried out in the operating room with an attached IVF laboratory. It is usually done under short general anaesthesia and involves follicular aspiration under the guidance of vaginal ultrasound.

4.3.4. ART for male factor infertility

Male infertility refers to male's inability to cause pregnancy due to deficiencies in the semen, abnormal sperm production due to undescended testicles, blockages that prevent the delivery of sperm, genetic defects, issues with ejaculation

etc. couples with normal semen parameters undergo IVF using semen preparation of male partner but couples with severe male factor infertility cannot be helped with IVF. Intracytoplasmic sperm injection (ICSI) is a procedure to treat such severe infertility. ICSI is an ART in which a single spermatozoon is directly injected into the cytoplasm of the oocyte. It can be performed with ejaculated spermatozoa retrieved from testicular biopsy.

4.3.4. IVF of gametes

It is done in the laboratory which is attached to the operating theatre where ovum pickup is done. The ovum pickup yields follicular aspirates which are examined for oocytes under a stereo dissecting microscope with heated stage. Then the ova are graded, washed free of blood and transferred to culture medium in four well plates at 37 C in an incubator. For IVF, oocytes are inseminated with a concentration of 100,000/ml normal motile sperms. Fertilization on day one is checked and on day two grading of embryos is done and are selected for embryo transfer.

4.3.5. Cryopreservation of embryos

It reduces the wastage of valuable surplus embryos. During the IVF process, if there has been a failure to achieve conception, the surrogate mother can undergo embryo transfer from cryopreserved surplus embryos.

4.3.6. Embryo transfer into the womb of surrogate

Once the embryos have been selected and prepared, they are transferred into uterus of the surrogate. Typically, the embryos are transferred on the second or third

day after fertilization, at the four to eight cell stages. But nowadays, to maximize the probability of implantation, some clinicians cultivate embryos until the blastocyst stage (five days after fertilization) before transferring them to the uterus.

4.3.7. IVF success and failure

Like any other medical treatment, treatment of IVF surrogacy also has its success and failure. IVF clinics in the US have a success rate of about 75%. Once the surrogate is pregnant, the success rate for a healthy birth is as high as 95%. Success rate is actually varies with many factors like age of surrogate, quality of embryo etc.

During the visit of the researcher to the Institute of Human Reproduction, Guwahati, the success rate for IVF was recorded about 50% to 60%, in the Pratiksha Hospital and Dispur Polyclinic IVF Centre it was about 40% to 45%.

4.3.8. Complications of ART treatments

Though, the ART has revolutionized the treatment of infertility, however, it is not free from health risks associated with the treatment. Complications of ART include both those associated with treatment and those associated with the outcome and its need to be discussed with the surrogate mother and the intended or commissioning couple before starting the treatment. During the visit of the researcher to the institute of Human Reproduction, it was recorded that in surrogate pregnancy various health risk are associated such as- Diabetics, High blood pressure, Ectopic pregnancy and multiple risks of Caesarean section. The following are the major complications associated with IVF surrogacy-

a) Complications due to ovarian hyper stimulation syndrome (OHSS): Ovarian hyper stimulation syndrome (OHSS) is a complication of ovulation induction resulting in enlargement of ovaries and retention of fluids leading to various secondary complications, which normally resolve within two weeks, but can persist if pregnancy occurs.

During visit and interaction of the researcher with Dr. Kankan Sarmah, Clinical Pschologist of the Dispur Polyclinic IVF Centre, and Dr. Arup Deka, Deputy Medical Superintendent, they have confirmed that the main health hazard associated with ART is Ovarian Hyper-stimulation, which is presently, significantly reduced with advent of cryopreservation and newer triggering techniques. It is predominantly caused by human chrionic gonadotropin injection used for inducing final oocyte maturation and ovulation. The risk of OHSS could be mild, moderate and severe. In the mild category of OHSS, the clinical symptoms are usually nausea, vomiting, abdominal discomfort, abdominal distension, and/or diarrhea. In the moderate category of OHSS, features of mild variety are present and in addition, there is an ultrasound evidence of ascites. In the severe category of OHSS, the additional clinical features are abdominal pain, marked abdominal distension, ascites, dyspnea and a decreased urine output.

During interaction of the researcher with the Director of the Institute of Human Reproduction said that though, Ovarian Hyper-stimulation (OHS)

was the main hazard associated with ART, however after practicing Frozen Embryo Transfer (FET) the rate of OHS is notably reduced.

b) Risk of multiple pregnancies: Generally, in ART procedure more than one embryo is placed into the uterus of the surrogate woman for achieving a high success rate of pregnancy but it may result in multiple pregnancies. It creates high risks of health problems. The common troubles are preterm labor birth, gestational high blood pressure, gestational diabetes, anemia, birth defects, miscarriage, twin-to-twin transfusion syndrome, abnormal amounts of amniotic fluid, cord entanglement, caesarean delivery, postpartum hemorrhage etc.[25]

c) Complications during ovum pickup: The egg collection is a rather safe medical procedure; however one cannot rule out the potential occurrence of complications such as e.g. bleeding, abdominal pain, pelvic pain, infections, injuries of internal organs, adhesions, anaesthetic complications.[26]

d) Risk of spontaneous abortion: The risk of spontaneous abortion in IVF is increased and is primarily related to their own risk factors such as age, infertility and multiple pregnancies.

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[25] Complications of Multiple Pregnancy, available at https://www.urmc.rochester.edu/encyclopedia/content.aspx?ContentTypeID=85&ContentID=P08021 (accessed on December 5, 2018)

[26] Complications after the ovum pick-up procedure, available at http://www.invictaclinics.com/infertility-fag/complications-after-the-ovum-pick-up-procedure/(accessed on December 5, 2018)

e) Risk of ovarian cancer: Ovarian cancer is rare but is a fatal disease, accounting for 3% of all annual cancer diagnoses in women.[27] The increasing use of fertility medications for ovulation is mainly responsible for ovarian cancer. However, the various latest reports suggest that the fertility drugs are not the reason for ovarian cancer and it is recommended that women's ovaries should be examined before the use of ovulation medications.[28]

f) Risk of ectopic pregnancy: Ectopic pregnancy results when a fertilized egg implants outside of the uterus. And the most common place of ectopic pregnancy is the fallopian tube. In the first trimester, ectopic pregnancy is the most common cause of pregnancy related deaths and 10% of maternal deaths may be due to ectopic pregnancy. Most risk factors like pelvic inflammatory disease, intrauterine device, tubal surgeries, sexually transmitted diseases, infertility are associated with ectopic pregnancy.[29] Vaginal bleeding and abdominal or pelvic pain are the main symptoms of ectopic pregnancy.

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[27] KL Lindsay, D Daniel, *et.al*, Use of Fertility Medications and Cancer Risk: A Review and Update, available at https://www.ncbi.nim.nih.gov/pmc/articles/PMC5551049/ (accessed on December 14, 2018)

[28] American Society for Reproductive Medicine (ASRM), Assisted Reproductive Technology: A Guide for Patients, 2015, available at https://www.asrm.org/uploadedFiles/ASRM_Content/Patient_Recources/Fact_Sheet_and_Info_Booklets/ART.pdf (accessed on December 16, 2018)

[29] Ectopic Pregnancy: Diagnosis, complications and Management, available at https://www.aimu.us/2017/06/25/ectopic-pregnancy-diagnosis-complications-and-management/ (accessed on December 14, 2018)

g) Risk of birth defects, low birth weight: Risk of birth defects remains more common in ART. ART infants had a higher risk of birth defects compared to naturally conceived children. Among singleton births, ART was associated with septal heart defects, cleft lip with or without cleft palate, esophageal atresia and anorectal atresia.[30]

The innovation of ARTs is distinct as important landmark in the development of treatment for infertility in humans. ART management helps women for defeating social disgrace, fear and psychological trauma besides, ignoring burden and health risks. Therefore, it is desirable that the government and concerned authorities must locate way to get the most excellent out of a technology while being cautious to confines its mishandling.

[30] Supra note 5, p.40