

Refined Techniques Of Femicide

Foetal Sex Determination And Preselection

IT is indisputable that technological progress should be in conformity with human development and such development should lead to freedom, equality, justice and should put an end to the existing relationships based on exploitation. Any process which may provide more choices, power and control to a few individuals or groups at the cost of loss of such power or control by larger groups cannot be termed development.

Amniocentesis, the most popular technique used for sex determination, was initially developed to detect chromosomal abnormalities in foetuses. Subsequently, it became necessary to determine the sex of such abnormal foetuses as, in most such cases, females were mere "carriers" of such deformity, whereas males had a 50 percent chance of developing it. In such cases, male foetuses were aborted if the parents so desired.

However, in India, its use for sex determination soon gained popularity. Today, it is almost exclusively being used for sex determination and subsequently for female foeticide. Most people, and even some doctors, do not know that its principal use is for detection of hereditary abnormalities.

Now, more refined methods of foetal sex determination and various techniques of sex preselection are in the offing. These are In Vitro Fertilisation (IVF) technologies, DNA probes and all the latest developments in New Reproductive Technologies. It is necessary to understand the basic principles of such techniques before judging their likely repercussions.

Each human cell, with exceptions, contains 23 pairs of chromosomes in its nucleus. Chromosomes are the carriers of hereditary characteristics. Of these,

both the chromosomes in each pair are exactly identical in 22 pairs. It is not so in the 23rd pair which determines the sex of the embryo or foetus. Cells of females have two identical chromosomes (X-X) whereas males have two different chromosomes (X-Y). The gametes or sex cells, that is, those which lead to formation of sperms or ovum contain exactly half the number of chromosomes, that is one from each pair.

The cell division leading to formation of such haploid cells is called meiosis. Meiosis leads to the formation of cells bearing X chromosomes in females and X or Y chromosomes in males. During conception, the female cell or egg, bearing X chromosome fuses with the male cell or sperm bearing X or Y chromosome. The formation of cell bearing XY chromosomes results in a male offspring, and that bearing XX chromosome in a female offspring.

The sex of a child is determined by the chromosome in the male gamete (X or Y). So it is mainly the father who is responsible for the sex of the child, although conditions prevailing in the mother's re-productive tract may favour one of the two types of gametes, and hence influence the sex of the offspring.

The external genitalia of a foetus are not clearly distinguishable even up to the fifth month. Hence, most sex determination methods depend upon the removal of foetal cells and their chromosomal analysis. The presence of a mass of fluorescent "F bodies" in UV light or laser beam under a fluorescent microscope indicates the presence of male cells. A stainable nuclear material indicates female cells. The accuracy of results claimed by most Indian clinics is 97-99 percent.

All attempts at sex preselection are

based on separation of X and Y bearing gametes within or outside the body and fertilisation of the egg with the desired male gamete. It involves altering the composition of the female reproductive tract to facilitate the passage of Y bearing sperms.

The word amniocentesis is derived from the word amnion, meaning membrane, and kinesis, meaning pricking. At present, this is the most widely used method for sex determination in India. In the mother's womb, the foetus floats in amniotic fluid in an amniotic sac or bag of water. A few cells of the foetus are found in the fluid. The number of such cells increases as the foetus grows. However, the amniotic sac gets increasingly filled due to the growing size of the foetus. Amniocentesis consists of insertion of a long, aseptic needle into the amniotic sac through the mother's abdomen and withdrawal from it of 15 to 20 cc of amniotic fluid for chromosomal analysis. It is usually performed between the 16th and 18th week of pregnancy during which time it is relatively easier to withdraw fluid containing sufficient number of cells without damaging the placenta or foetus. It should preferably be carried out under an ultrasonic cover by means of which the movement of the foetus and location of placenta can directly be viewed on a screen using inaudible sound waves. This helps in the insertion of the needle without causing any damage to mother, foetus or placenta.

The insertion of a needle into the amniotic sac can damage the placenta or foetus resulting in puncture marks on its body, organ damage or even spontaneous abortion. The result of sex determination is known at the end of the fourth month of pregnancy. Medical termination of pregnancy carried out after that period, that is, in the second trimester of pregnancy, is more difficult and risky and can adversely affect the mother's health, especially by making her more anaemic. Repeated cycles of



*The deadly shape some preference
preference can assume is demon-
strated in this photograph of twins.
Why is the child on the left so much
better nourished than the child on
the right?
Because the former is a boy and the
latter a girl*

pregnancy, sex determination, abortion and pregnancy, can be very hazardous for a woman's health.

Due to these hazards associated with amniocentesis, efforts are being made to evolve a simpler, safer method of sex determination which can be used in the earlier phases of pregnancy. Of these, at present Chorionic Villi Biopsy (CVB) seems to be the most effective and is replacing amniocentesis. It consists of removing the column like cells or villi from the chorionic part of the uterus through

the cervix under ultrasonic scanning. The cells can then be studied by chromosomal analysis or with specific DNA probes. It carries three to five percent risk of bleeding, pain and spontaneous abortion in the next two weeks. However, it is considered to be less painful and safer than amniocentesis. It is carried out in the sixth to 13th week of pregnancy, making abortion in the first trimester possible.

Ultrasonics is a useful noninvasive technique used for directly viewing the

foetus. Fortunately, on its own, it cannot be misused for sex determination as the external genitalia of a foetus are not well defined even in the fifth month of pregnancy.

However, extensive research is going on for a simpler, quicker method of sex determination. Some such attempts include measuring the hormonal level in the mother's saliva or blood, testing cells from an IVF embryo, testing foetal cells in the mother's blood and so on. None of these is yet perfected. It will not be

surprising if within a decade sex determination becomes as simple as withdrawing blood from a mother's arm, separating foetal cells from it and then determining foetal sex by chromosomal analysis or other methods. With the development of safer, quicker and noninvasive methods of sex determination, it will soon be difficult to oppose them on grounds of foetal or maternal health. Opposition should now come from a more basic ideological angle.

In modern technology's bid for greater control over a woman's body, sex preselection technology is a more advanced stage of sex determination technologies, for the former preempts the need for the latter. Once the birth of a child of a particular sex can be medically manoeuvred, all sex determination technologies and opposition to them would automatically become a priority research field for the same reasons as sex determination. Needless to say, in India, sex preselection is used exclusively for the begetting of sons. Notwithstanding the claims to success of hundreds of such techniques, the International Planned Parenthood Federation stated in 1985 that no such method has been scientifically proved to be effective.

A research project on sex preselection is going on in the government run Poddar Ayurvedic Hospital, using nasal drop therapy to beget sons. There is even a product "Select" in the Gujarat market which claims 80 to 85 percent success by administration of capsules to a mother in the second month of pregnancy. However, no scientific evidence is yet provided to substantiate the claim.

The second set of methods focus on altering the environment in the female reproductive tract, making it more conducive to sperms bearing Y chromosomes. Various methods like diet control, use of acidic or alkaline vaginal douches before conception, scheduling the time of conception, are being advocated. Although a large number of

people are willing to pay large sums of money to try these methods, none of them has yet been proved to be effective in India or outside.

The third set of methods is in accordance with the principles of modern biological sciences. It uses the difference in physical properties like density, motility, electric charge between X and Y bearing sperms, to separate both types of sperm. The fraction rich in Y chromosomes is then used for an IVF with egg. Although the approach is scientifically correct, nature always has an upper hand in such experiments and persistent efforts totally to separate X and Y bearing sperms have failed. The variation in properties of the sperms of the same persons or different persons vary so widely as to obscure the difference in properties of X and Y bearing sperms. Moreover, the technique of IVF is sophisticated and requires considerable skill.

Various questions emerge from this scenario. The first one is about modern science's outlook on women's health. If we look at the development of this science especially in the last two decades, we observe a persistent pattern of efforts made to control women's bodies. Hormonal contraceptives, injectable contraceptives, implants, sex determination, sex preselection, all are based on the assumption that women's bodies are objects to be tampered with and experimented upon without bothering about the effects of such efforts on them. The aim is to control the reproductive process—the number of children she should have, the timings of their conception, their sex. Almost everything seems to be controlled by some agency other than women themselves. This raises the basic question of who should have such control. Women themselves, scientists and technologists, religious establishments or the state?

It is worth noting that technologies to reduce drudgery or improve the quality of life for women are either not

explored or, if explored are hardly implemented. In about four decades after independence, clean water and basic sanitation facilities have not reached most villages. More than half of Indian women are anaemic. The sex ratio is most unfavourable for women in India. The infant mortality rate, especially for females, is one of the highest in the world. Technology has failed to improve women's lot. But technology which can be used for antiwomen purposes is readily accepted in all strata of society. Unfortunately, in India, a very large number of women scientists and doctors are employed to propagate such technologies.

The basic question is : should we allow science and technology to be harnessed for such blatant anti-women purposes ? If we wait for social transformation to take care of it, we may be paving the way for more hazardous technologies which will have far more devastating effects on society in general and women in particular.

My Parents Found Him For Me

*When I see you
no more the quiet gentleman
with the modest smile
but pounding flesh upon flesh
I am sad.
Where is my moonlit night
my promised whisper
where is the choice
for me to deny and for me
to pursue ?
Before I found me
they made me yours,
Pray, don't you feel
a thing ? to so possess ?
I care, I really do, you say,
but say it as though you have
the right to,
as though I owe it to you to
let you care, to let you own.
Your virility, did it need proving?
and I a testimony for it?
to have a life within me,
not having lived myself?*

—Mani Rao