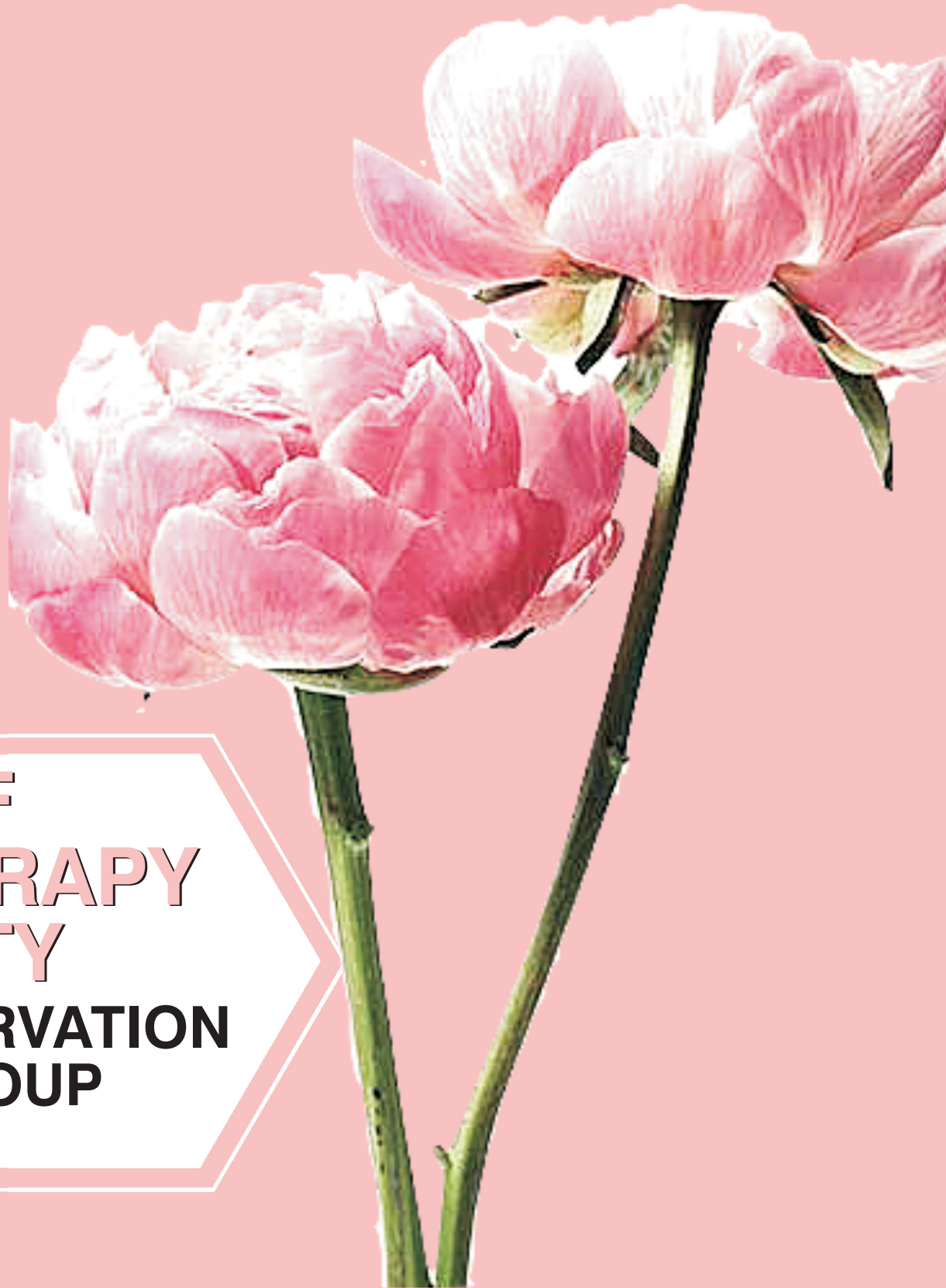

EFFECTS OF CHEMOTHERAPY ON FERTILITY

ISAR FERTILITY PRESERVATION SPECIAL INTEREST GROUP

What is Infertility?

Infertility is defined by WHO (World Health Organisation) as inability to conceive in one year after unprotected intercourse if age of female is less than 35 years and less than 6 months if age is more than 35 years.

How does chemotherapy affect the reproduction?

The drugs are designed to work or act on the dividing cells of the targeted organ, which in turn also act on other fast dividing cells like oocyte or developing spermatogonia. There is damage to the stock of eggs in the ovary which may lead to vulnerabilities in the developing egg.

Besides the above-mentioned effect of the chemotherapy on the egg pool, chemotherapy also leads to injuries of the blood vessels. The obstruction or narrowing of the blood supply may lead to oxygen deprivation and loss of function of some parts of the ovary.

How does the chemotherapy affect ovarian function?

For women, these therapies can cause ovarian damage that can lead to genetically damaged oocytes, ovarian failure, early menopause, or other reproductive problems. The extent of the follicle loss depends on the type of cytotoxic treatment, the substances and dosages used and also importantly age of the patient.

Treatment-induced infertility is a major issue for longtime survivors of cancer, especially as many young cancer patients might not have completed their Families at the time of diagnosis and treatment.

Which chemotherapeutic drugs can cause infertility?

Most chemotherapeutic agents can damage female's eggs and men's sperms. In the female, it depends on the age, type or drug and dose and duration used.

Most of the chemotherapeutic agents can be classified according to the phase of the cell cycle, in which they are active. The action site of each chemotherapeutic agent is different. Alkylating agents act on the DNA (the genetic material inside the cells), antimetabolites on DNA synthesis and spindle poisons on the process of cell division. Therefore, the use of a specific agent will define the aspects of ovarian function, which are likely to be more sensitive regarding this substance.

The drugs most commonly causing the damage are

- Busulfan
- Carboplatin
- Carmustine
- Chlorambucil
- Cisplatin
- Cyclophosphamide
- Dacarbazin
- Doxorubicin
- Ifosfamide
- Procarbazine

The chemo drugs which has low risk of damaging eggs are

- 5-Fluorouracil
- Bleomycin
- Dactinomycin
- Daunorubicin
- Idarubicin
- Methotrexate
- Vinblastin
- Vincristine

So it is advisable to talk to your treating doctor about the fertility damage with the chemotherapy and the option for preservation

Does age at the time of chemotherapy makes any difference?

The younger you are, the ovaries have good and large quantity of eggs. Statistically, younger is the patient (less than 35 years) at the time of chemotherapy more are the chances of getting her pregnant after treatment.

Girls who have chemotherapy before puberty or just at the time of puberty end up in early or premature menopause by the age of 35 40 yrs. In such cases planning of pregnancy should be at th earliest post marriage.

If I get pregnant during chemotherapy?

The chemo drugs are damaging to fetus and can cause birth defects. Hence, it is always advisable to use very effective birth control.

How soon can you plan pregnancy after chemotherapy?

Women are often advised not to get pregnant within first 6 months after chemo as they might have damaged oocytes growing or maturing at the time of chemotherapy. If the affected egg is fertilized, embryo could miscarry or the baby may have genetic problems. A disease free interval of 2 years after the end of treatment just to make sure that there is no relapse is a good amount of time after which the patient can start trying for a pregnancy.

How does infertility result in men?

Chemotherapy damages the lining of testicles, which produces sperms. This may lead to decrease in sperm count (Oligospermia) or no sperms in semen (Azoospermia). The damage may be reversible in some cases but takes a very long time or several years but mostly it is permanent.

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