ICOG CAMPUS

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CONTRACEPTION UPDATE

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PRESIDENT'S MESSAGE

Dear Friends,

It gives me immense pleasure to bring to you all this ICOG campus on Contraception. Though contraception has been long established, unswerving access to birth control still remains a challenge in our country. This Issue of ICOG campus sheds lighton different aspects of contraception including the various contraceptive methods, the counselling, different government programs and schemes for same.

FOGSI has always played a vital role in spreading the knowledge about this evolving sub-specialty both among doctors and patients. This year my FOGSI slogan is *Swasthya Nari, Sukhi Nari.* My CSR activity is defined as *Badlaav* (Change) including three arms - *Ekikaran* (integration of thought and action), *Samanta* (equality of treatment irrespective of economic status) and *Takniki* (technology to achieve these objectives). The books and focuses are a step towards my goal of improving women s health in our country, by providing updated information about the relevant topics in women care.

Another highlight of this issue is that each of the contributing authors is a master of the topic they have contributed, these chapters are therefore rich with not only the recent evidence but also the vast experiences of the author, hence are full of practical tips and points which the readers will find extremely beneficial.

It will be a ready reckoner for both the students and clinicians to update their knowledge on evidence-based management of hormonal disorders. I congratulate Dr. Priyankur Roy and all the editors and co-editorsfor their sincere efforts to write, collate, edit and publish this issue.

I sincerely hope that this issue of ICOG campus will benefit and empower all the FOGSIANS.

Wish you all a Happy Reading!!

Dr. Hrishikesh D. Pai
President
FOGSI 2022-2023

CHAIRPERSON'S MESSAGE

Dear all,

Greetings from the desk of the chairperson of ICOG.

Contraception, a crucial aspect of reproductive health, involves the deliberate use of methods to prevent unintended pregnancies. Various options cater to diverse needs, ranging from hormonal methods like birth control pills and patches to barrier methods such as condoms and intrauterine devices (IUDs). Permanent solutions like tubal ligation exist for those seeking a more enduring form of contraception. The effectiveness, accessibility, and side effects vary among methods, allowing individuals to choose what aligns with their preferences and health considerations. Beyond preventing pregnancies, contraception plays a pivotal role in empowering individuals to plan their families, contributing to overall well-being and societal advancement.

I take immense pride in bringing to you this edition of Campus, which has all relevant material related to contraception, contributed by renowned authors. Hoping that you will all benefit in various ways from this compilation.

Regards,

Dr. Laxmi Shrikhande
Chairperson, ICOG

VICE CHAIRPERSON'S MESSAGE

Greetings from ICOG!

The benefits of contraception have long been established, yet consistent access to effective birth control remains a challenge for many women. In our country, there is still tremendous unmet needs for contraception and a lot of unwanted pregnancies add to maternal morbidity and even mortality. On a global scale, family planning improves maternal and child health even slows the effects of population growth on climate change. In our country , barriers to contraception still exist, ranging from variable insurance coverage to health-care access to difficulties with use of the various methods. Another barrier has been physicians' lack of up-to-date knowledge about contraceptive methods. Multiple changes have occurred in the contraceptive basket since last few years. There are variety of methods available and new ways of prescribing older methods hence Comprehensive knowledge of the array of contraceptive methods will facilitate better patient counseling.

This issue of ICOG campus exactly focusses on this and brings important points related to contraception to our clinicians. I must complements all contributors who have simplified these concepts of better understanding. A special word of appreciation to Dr. Priyankur Roy for putting all these chapters together under the guidance of President Dr. Hrishikesh Pai & ICOG Chairperson Dr. Laxmi Shrikhande. I am sure this will a great ready reckoner to all clinicians.

Happy reading!

Dr. Parag Biniwale
Vice Chairperson, ICOG

SECRETARY'S MESSAGE

Dear Friends,

Namaskar!

Greetings from Indian College of Obstetricians & Gynecologists,

The United Nations Population Division has estimated global contraceptive prevalence in 2022 of any method at 65% and of modern methods at 58.7% for married or union women.

Contraception, family planning and reproductive health are very important elements of human well-being.

Contraception is the intentional prevention of pregnancy through the use of various devices, methods (medical or surgical), or sexual practices. The National Program for Family Planning was launched in 1952. A gradual shift in policies led to the formulation of the National Population Policy in 2000, which provided a holistic and target-free approach resulting in the reduction of fertility. The program has been expanded to reach every nook and cranny of the country and has various new choices in terms of subcutaneous injections and contraceptive implants. Contraceptive counseling and care services, along with uninterrupted abortion services, are essential to improving the health of women.

FOGSI ICOG has conducted a three-day online certificate course on 'Contraceptive Update' and Campus has followed it to update the ICOGians.

It gives me immense pleasure to introduce this edition of ICOG Campus on "Contraception," highlighting several very interesting articles on contraception and family planning. ICOG would like to thank the authors for their precious scientific contributions.

I congratulate the editor for bringing out this issue of Campus.

Happy reading

Dr. Ashok Kumar
Secretary, ICOG
Director Professor & Head
Department of Obstetrics & Gynaecology,
Atal Bihari Vajpayee Institute of Medical Sciences &
Dr. Ram Manohar Lohia Hospital, New Delhi

FROM THE EDITORS DESK

Dear Friends,

Greetings from Public awareness committee, FOGSI.

Contraception, family planning and reproductive health are very important elements of human well-being and there is a need of a lot of awareness to cultivate healthy contraceptive practices. Inspite of the availability of a wide basket of contraceptive measures in our country, consistent access to effective birth control remains a challenge for many women threby increasing the unmet need of effective and sustainable methods. Proper counselling and increasing the availability of various modes of contraception along with safe and effective abortion care is the need of the day.

FOGSI ICOG has conducted a three-day online certificate course on 'Contraceptive Update' and Campus has followed it to update the ICOGians. I take immense pride in bringing to you this edition of Campus with some interesting contributions by authors from across the country.

I congratulate the editor for bringing out this issue of Campus.

Happy reading everyone...

Dr. Priyankur Roy
Chairperson, PAC, FOGSI
Issue Editor

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PAST CHAIRPERSONS

SN	CHAIRPERSON NAME	TENURE
1.	Late Dr. C. L. Jhaveri, Mumbai	1989-96
2.	Late Dr. C. S. Dawn, Kolkata	1997-99
3.	Late Dr. Mahendra N. Parikh, Mumbai	2000-02
4.	Dr. Rohit V. Bhatt, Gujarat	2003-05
5.	Dr. Usha B. Saraiya, Mumbai	2006-08
6.	Dr. Duru Shah, Mumbai	2009-10
7.	Late Dr. Behram Anklesaria Ahmedabad	2011
8.	Dr. A. K. Debdas, Jamshedpur	2012
9.	Dr. Hiralal Konar, Kolkata	2013
10.	Dr. Atul Munshi, Gujarat	2014
11.	Dr. Dilip Kumar Dutta, West Bengal	2015
12.	Prof. Krishnendu Gupta, Kolkata	2016
13.	Dr. Mala Arora, Faridabad	2017
14.	Dr. S. Shantha Kumari, Hyderabad	2018
15.	Prof. Tushar Kar, Cuttack	2019
16.	Dr. Mandakini Megh, Mumbai	2020-21
17.	Dr. Uday Thanawala, Mumbai	2021-22

PAST SECRETARIES FOR THE PERIOD OF 10 YEARS

SN	SECRETARY NAME	TENURE
1.	Dr. Jaideep Malhotra, Agra	2012-14
2.	Dr. S. Shantha Kumari, Hyderabad	2015-17
3.	Dr. Parag Biniwale, Pune	2018-21

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HISTORY OF CONTRACEPTION

Dr. Bharathi Rajshekhar
MD, DGO, FKCOG
Sahyaadri Multi-Speciality Hospital (Bharathi Nursing Home), Hassan

Birth control and contraception have been used since ancient times a variety of things were used to control the size of family many had no scientific basis the evolution of modern day birth control measures are interesting and intriguing.

Our ancestors would try just about anything to prevent pregnancy

- The Ebers Papyrus from 1550 BC and the Kahun Papyrus from 1850 BC have within them some of the earliest documented descriptions of birth control,
- the use of honey, acacia leaves and lint to be placed in the vagina to block sperm.
- . It describes various contraceptive pessaries, including acacia gum, which recent research has confirmed to have spermatocidal qualities and is still used in contraceptive jellies
- . Other birth control methods include the
- application of gummy substances to cover the "mouth of the womb" (i.e. the cervix),
- a mixture of honey and sodium carbonate applied to the inside of the vagina
- apessary made from crocodile dung.
- Lactation (breast-feeding) of up to three years was also used for birth control purposes in ancient Egypt.
- Indians used a variety of birth control methods since ancient times, including a potion made of powdered palm leaf and red chalk, as well as pessaries made of honey, ghee, rock salt or the seeds of the palasa tree.
- A variety of birth control prescriptions, mainly made up of herbs and other plants, are listed in the 12th century Ratirahasya ("Secrets of Love") and in the 15th century AnangaRanga ("The Stage of the God of Love").
- In medieval western Europe, any efforts to halt or prevent pregnancy were deemed immoral by the Catholic Church.
- Women of the time still used a number of birth control measures such as coitus interruptus, inserting lily root and rue into the vagina, and infanticide after birth

CONDOM

We started using condoms around 3.000 BC.

Condoms were made out of animal's bladder or intestines, linen, leather, paper and yes, tortoiseshell and animal horns.

Egyptian men wore colored condoms to distinguish social status within their hierarchy.

Condoms were manufactured by butchers, who understood the high strength intestines and bladders.

Gabriele Falloppio was an Italian physician who first wrote about condoms.

In the book De MorboGallico (meaning “The French Disease”) he describes his experiment on 1,100 men who wore linen sheath for protection against syphilis.

The sheath had to be fastened by ribbon and lubricated with saliva.

IUCD

The first published paper on actual IUD insertions was made by Dr. Richard Richter in 1909 in Germany.

The device he inserted was a ring made of silkworm gut, with 2 ends which protruded from the cervical os enabling him both to check the device and remove it.

As late as 1959, Dr. Alan Guttmacher co-authored a paper in which the IUD was condemned for its ineffectiveness, potential source of infection, and its carcinogenic potential.

Since 1960, various kinds of IUDs have been developed, and various organization such as the Population Council showed a renewed interest in IUDs as a contraceptive method

The invention of the copper IUD in the 1960s brought with it the capital 'T' shaped design used by most modern IUDs.

physician Howard Tatum determined that the 'T' shape would work better with the shape of the uterus, which forms a 'T' when contracted.

He predicted this would reduce rates of IUD expulsion.

Together, Tatum and Chilean physician Jaime Zipper discovered that copper could be an effective spermicide and developed the first copper IUD, TCu200. Improvements by Tatum led to the creation of the TCu380A (ParaGard), which is currently the preferred copper IUD

EVOLUTION OF OC PILLS

The idea of using hormones for contraception was first suggested in the 1920s when the ovarian hormones, estrogen and progesterone, and their role in reproduction were discovered.

In the 1950s, synthetic versions of progesterone were developed, known as progestogen or progestin.

In 1957, the Food and Drug Administration (FDA) approved the use of mestranol (estrogen) + norethynodrel (progestin) for the treatment of menstrual disorders.

The first large trial of the combined (containing estrogen and progestogen) OCP took place in 1956-1957

and in 1960 the first combined pill became available in the USA.

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the invention of birth control pills has been nothing short of revolutionary and it has drastically changed the methods of contraception in the last 60 years.

PHYSIOLOGY OF CONTRACEPTION

Dr. Prof. Asha Neravi
HOD - OBGYN Department
SDMCMH, Dharwad

Search for ideal contraception method is always there. When we understand physiology behind conception. We can offer basket of contraceptive choice to eligible couple according to his / her need and wish to prevent family planning .The success of contraceptive method Depends not only in its effectiveness in preventing pregnancy but the rate of continuation of its proper use. In barrier contraceptive condom prevent the sperm from being deposited in the vagina. Its effectiveness is increased by using with spermicidal jelly. Female condom block the cervix and prevent prevents sperm entry. Birth control sponge contain spermicidal and prevent pregnancy by blocking the cervix for sperm entry and destroy sperm in vagina. intrauterine device releases copper ion and decreases sperm mortality and function by altering the uterine and tubal fluid environment. It stimulates foreign body reaction in the Endometrium and releases, macrophages and prevent implantation. Hormonal IUD thickens cervical mucus to prevent fertilization and stops ovulation. In hormonal contraceptives COC work by preventing ovulation by suppressing FSH and LH level causeing cervical mucus thickening and prevents entry of sperm. It causes thickening of endometrium and prevents implantation by suppressive effect on HPO axis disappear quickly after stopping OCP 90 percent ovulation return within three months. Progesterone only pills thickens make Cervical mucus. Viscous mucus prevent cervical penetration endometrium becomes atrophic and implantation is prevented it also inhibits ovulation Injectable progestin suppresses mid cycle, LH peak and prevent ovulation it thickens cervical mucus make endometrium atrophic and prevent blasto cyst implantation. Birth control rings contain estrogen and progesterone, which prevent ovulation and fertilization. Implants contain progesterone which work by thickening of cervical mucus thinning of endometrium and preventing ovulation. Post coital contraceptive, works by ovulation inhibition and prevention of sperm entry and thus preventing implantation of ovum. Centrochoromam saheli is non-steroidal contraceptive, having potent anti estrogenic and weak estrogenic properties It prevents implantation of fertilized ovum. Male and female sterilization blocks sperm and thus fertilization.

The power of options of contraceptive methods enable people to take control over their reproductive health.

COUNSELLING IN CONTRACEPTION

Dr. Mala Srivastava[1], Dr. Neema Tufchi[2], Dr. Ankita Srivastava[3]

[1]Professor GRIPMER & Senior Consultant Institute of Obs & Gynae, Sir Ganga Ram Hospital, New Delhi
[2]Research Scientist, ICMR project, Department of Obs & Gynae, Sir Ganga Ram Hospital, New Delhi
[3]Trainee Mch Reproductive medicine and surgery, Amrita Institute of Medical Sciences & Research Center, Kochi

Introduction - Contraceptive choice is important to explore the patient's ideas, concerns, and expectations about contraceptive options. When counseling patients regarding contraception, it is important to covers mode of action, hormonal content, side effect profile, risks and potential complications, effect on menstruation, effectiveness, method of use and practicality, reversibility and effect on future fertility, follow-up requirements and not all contraceptives will be suitable for all patients.

Contraception prevents pregnancy by stopping ovulation, fertilization, or implantation. There are many methods of contraception : Natural family planning, Barrier methods, Combined hormonal contraceptives, Progestogen-only contraceptives, Long-acting reversible contraceptives (LARCs): intrauterine, injection, implant, Sterilization, Emergency contraception.

Family Planning Counselling - Family planning counseling is the process whereby you help clients and people to make informed and voluntary choices about the number of children and the spacing of the children within their family. Counseling is one of the critical elements in the provision of quality family planning services. Through counseling providers help clients make and carry out their own choices about reproductive health and family planning. Good counseling leads to improved client satisfaction. A satisfied client promotes family planning, returns when she needs to and continues to use a chosen method.

Informed choice - Informed choice is defined as a voluntary choice or decision based on the knowledge of all available information relevant to the choice or decision. In order to allow people to make an informed choice about family planning, you must make them aware of all the available methods and the advantages and disadvantages of each. They should know how to use the chosen method safely and effectively, as well as understanding possible side effects. There are different ways of providing effective family planning counseling.

***Individual counseling* -** In most cases, individuals prefer privacy and confidentiality during communication or counseling with you. It is important to respect the needs and interests of a client by finding a private room or place where you can talk with them.

***Couple counseling* -** Couple counseling is when you give counseling service to a couple or partners together. This is particularly common when they are thinking of using irreversible family planning measures, such as voluntary surgical methods.

***Group information sharing* -** Group information sharing is used when individual counseling is not possible, or if there are people who are more comfortable in a group. In this situation, after greeting everyone in a friendly manner, you would explain to them the benefits of family planning, discuss briefly common myths and mistaken beliefs about family planning, and then inform the group about how to obtain appropriate contraception. It is a cost-effective way of information sharing and answering general questions, but people are not likely to share their more personal concerns with you in this setting.

Principles of Family Planning counseling

- To maintain privacy, ensure confidentiality, be non-judgmental, use simple culturally appropriate and easy to understand language, use good interpersonal communication skills, be brief, simple and specific with the key message, encourage the client to ask questions and express any concern, use AV aids, anatomic models, and contraceptive samples, provide feedback, repeat key information. Always verify with the client has understood by making the client repeat the key messages.

Stages of counseling for family planning

General counseling **-** The first contact usually involves counseling on general issues to address the client's needs and concerns. Also give general information about methods and clear up any mistaken beliefs or myths about specific family planning methods. All this will help the client to come at an informed decision on the best contraceptive method to use. During this session provide information on other sexual and reproductive health issues, like sexually transmitted infections (STIs), human immunodeficiency virus (HIV), acquired immunodeficiency syndrome (AIDS), and infertility.

Method-specific counseling **-** In method-specific counseling, more information is given about the chosen method. In this case, explain the examination for fitness (screening), and instruct on how and when to use the given method. Also tell the client when to return for follow-up.

Family planning counseling the BRAIDED approach

The acronym BRAIDED can help you remember what to talk about when you counsel clients on specific methods. It stands for :

- B - Benefits of the method
- R - Risks of the method, including consequences of method failure
- A - Alternatives to the method (including abstinence and no method)
- I - Inquiries about the method (individual's right and responsibility to ask)
- D - Decision to withdraw from using the method, without penalty
- E - Explanation of the method chosen
- D - Documentation of the session for the records.

Family planning counseling : the GATHER approach

GATHER is an acronym that will help you remember the 6 basic steps for family planning counseling.

- It is important to know that not every new client needs all the steps Use the GATHER approach sensitively so that it is appropriate to each client's need.
- Within the community there is a need to give more attention to one step than another.
- G - Greet the client respectfully.
- A - Ask them about their family planning needs.
- T - Tell them about different contraceptive options and methods.
- H - Help them to make decisions about choices of methods.
- E - Explain and demonstrate how to use the methods.
- R - Return/refer; schedule and carry out a return visit and follow up.

Conclusion

In conclusion, counseling on contraception is a vital aspect of reproductive healthcare that empowers individuals and couples to make informed choices about family planning. It plays a crucial role in promoting safe and responsible sexual behavior, preventing unintended pregnancies, and reducing the risk of sexually transmitted infections. Contraception counseling is not only about providing information but also about fostering a supportive, non-judgmental environment where individuals can openly discuss their needs, preferences, and concerns related to contraception.

GOVERNMENT POLICIES IN CONTRACEPTION

Dr. Nalini I. Anand
MBBS, MD (Obstetrics and Gynecology)
Professor and HOD, M. P. Shah Medical College, Jamnagar

Aims and objectives of family planning are to control population growth for better standard of living and to bring down the birth rate to sustainable level by increasing contraception usage. To prevent too early,to frequent, too many pregnancies and prevents unsafe abortions. To reduce high maternal and prenatal mortality and morbidity and society upliftment.

- The government has drawn out comprehensive National and State roadmaps and also district action plan adopting a decentralized planning approach focusing on operationalization of facilities and delivery of services.
- Theme of government policies is two child norms whether boy or girl.
- Target of government policies is to attain couple protection rate of > 60%, Total fertility rate < 2.1 and NRR :

India's strategy is on increasing focus on spacing service. Under a new scheme launched by the Government of India, services of ASHAs to be utilized for counselling newly married couples to ensure spacing of 2 years after marriage and couples with 1 child to have spacing of 3 years after birth of1st child. ASHA would be paid following incentives : Rs. 500/- to ASHA for delaying first child birth by 2 years after marriage. Rs. 500/- to ASHA for ensuring spacing of 3 years after the birth of 1st child.Rs 1000/- in case the couple opts for a permanent limiting method up to 2 children only. Voluntary adoption of family planning based on felt need of the community. Giving focus on male participation. Right based approach to family planning and expanding contraceptive choices.

Contraceptive basket of choice under National Planning Programme

a) **Condoms (Nirodh) -** it is the barrier methods of contraception which offer the dual protection of preventing unwanted pregnancy as well as transmission of sexually transmitted infection (STI)

b) **Oral contraceptive Pill including**

   i) **COC''s (MALA-N) -** These are hormonal pills which have to betaken by a woman, preferably at a fixed time daily. The strip also contains additional iron pills to be consumed during the hormonal pill free days.

   ii) ***Centchroman (Chhaya)*** **-** It is non hormonalnon steroidal once a week pill.

   iii) ***Emergency contraceptive pills (Ezy Pill)*** **-** The pill should be consumed within 72 hours of unplanned / unprotected sexual intercourse and should never be considered a replacement for a regular contraceptive.

   iv) ***Progesteroneonly pills*** **-** these are indicated for use by nursing mothers 6 weeks after delivery.

c) **IUCD Copper containing IUCDs -** are a highly effective method for long term birth spacing. Should not be used by women with uterine anomalies or women with active PID or those who are at increased risk of STI. There are two types of CuT 380A (10 years) and CuT 375 (5 years).

d) **Injectable Depot Medroxy Progesterone Acetate (ANTARA) -** 150 mg of depot Medroxy progesterone acetate is given intramuscular. It is effective for 3 months.

e) **Malesterilization** is done through a puncture or small incision in the scrotum, the provider locates each of the two tubes that carries sperm to the penis (vasdeferens) and cuts or blocks it by cutting and tying it closed or by applying heat orelectric cautery. The procedure is performed by MBBS doctors trained in these. However, the couple needsto use an alternative method of contraception for first three months after sterilization tillno sperms are detected in semen. Two techniques being used in India are conventional& non scalpel vasectomy which required no incision, only puncture and hence no stitches.

f) **Femalesterilization** is done by minilapit involves making a small incision in the abdomen. The fallopian tubes are brought to the incision to be cut or blocked. It can be performed by a trained MBBS doctor and laparoscopic sterilization can be done only by trained and certified MBBS doctor or specialist.

Augmenting the demand through ASHA schemes for Family Planning which help in home delivery of contraceptive. ASHA is charging a nominal amount from beneficiaries for her effort to deliver contraceptives at doorstep. i.e Rs. 1 for a pack of 3 condoms. Rs. 1 for one pack of OCPs and Rs. 2 for a pack of one tablet of ECP. She ensure spacing at birth & provides pregnancy test kits (NISCHAY) for early detection of pregnancy.

Promoting Quality Sterilization Services Sterilization Compensation Scheme the compensation package has been enhanced in 2014 for 11 high focus high TFR states. Higher package for Post partum sterilization and male sterilization & Mission Parivar Vikas.

Mobile terms dedicated family planning services - This scheme has been introduced in high focus states in 2014-2015to provide sterilization services in areas where there is dearth of service providers.

Scheme for ensuring drop back services to sterilization clients was launched in 2015 and can availed as per demand from the beneficiaries.

National family planning Indemnity scheme - The scheme was revised in 2013 and is now being operated by state governments.

Promoting quality IUCD services - Interval IUCD can be provided in all public health facilities by a trained provider in OPD. PPIUCD - Inserted within 48 hour after delivery. PAIUCD - inserted within 12 days of abortion in PHC and other health facilities.

Extended PLPPSA Scheme -

Programme Linked Payment PLAN to service providers, acceptors and ASHA's Trained / skilled empanelled providers inserting PPIUCD / PAIUCD is given rupees 150 per insertion. ASHA accompanying the client is given rupees 150. Beneficiary is also given rupees 300.

Assured delivery of family planning services

Fixed Day Services (FDS) for IUCD insertion : States are facilitated to ensure fixed days IUCD insertion services at the level of Sub-Centreand PHC (at least 2 days in a week).

Fixed Day Static Services in sterilization at facility level : Operationalization of FDS has following objectives are to make a conscious shift from camp approach to regular routine services. To make health facilities self sufficient in provision of sterilization services, To enable clients to avail sterilization services on any given day at their designated health facility,

Camp approach for sterilization services : it is continued in those states where operation of regular fixed day static services in sterilization takes longer time.

Rational placement of trained providers : it is done at the peripheral facilities for provision of regular family planning services.

Generating demand and awareness for family planning services to improved counseling through RMNCH counselors. Celebrating of world population day and fortnight from 27th June - 10 th July : Dampati Sampark Pakhwada or Mobilisation Fortnight 11thJuly - 24th July : Jansankhya Sthirtha Pakhwada or Population Stabilisation Fortnight celebrating of vasectomy fortnight (21st November - 4th December)

FP-LMIS

Family planning logistic management information system has been incorporated in NFPP to ensure right commodities, in the right quantities reach right place at the right time.

Public Private Partnership

It is assumed that effective collaboration with the private sector in the form of public private partnership would address the unmet need in the family planning significantly.

MEDICAL ELIGIBILITY CRITERIA FOR CONTRACEPTION : ENSURING SAFE AND INFORMED CHOICES

Dr. Basab Mukherjee
MD, FRCOG, FICOG
Vice President, Bengal Ob Gyn Society

Contraception, is a critical aspect of family planning and reproductive health. The ability to choose when and if to have children empowers individuals and couples to make informed decisions about their futures. However, not all contraceptive methods are suitable for every individual. This is where the "Medical Eligibility Criteria for Contraception" (MEC) comes into play.

MEC is a set of guidelines and recommendations developed by the World Health Organization (WHO) to assess the safety of various contraceptive methods for individuals with specific medical conditions. These criteria help healthcare providers and individuals make informed choices about the most suitable and safe contraceptive options.

The MEC categorizes contraceptive methods into four numbered categories to indicate their safety and appropriateness for people with specific health conditions. Let's delve deeper into these categories and understand the importance of MEC in guiding contraceptive decisions.

Category 1 - No Restriction : Contraceptive methods falling under Category 1 are considered safe for use without any known health risks. These methods can typically be used by most individuals without concerns related to their medical history. Common examples of Category 1 contraceptives include barrier methods like condoms, oral contraceptives, and long-acting reversible contraceptives (LARCs) like intrauterine devices (IUDs).

Category 2 - Benefits Outweigh Risks : In Category 2, the contraceptive method is generally considered safe, but specific medical conditions may pose some concerns or restrictions. Healthcare providers weigh the benefits against the potential risks when recommending these methods. An example is a hormonal contraceptive pill, which might be appropriate for some individuals but not for others with a history of certain medical conditions.

Category 3 - Risks Outweigh Benefits : Contraceptive methods placed in Category 3 are potentially riskier for individuals with certain medical conditions. This means that the risks associated with using the method may outweigh the benefits. In such cases, healthcare providers must carefully consider alternatives and discuss the potential risks with their patients. For example, if someone has a history of blood clots, hormonal contraceptives with estrogen are usually categorized as Category 3, as estrogen can increase the risk of blood clots.

Category 4 - Unacceptable Health Risk : Category 4 indicates that a contraceptive method is considered unsafe and not recommended for use by individuals with certain medical conditions. Using such a method could pose serious health risks. For example, the use of combined hormonal contraceptives is typically considered unacceptable for individuals with severe hypertension or a history of stroke.

It's important to emphasize that the MEC takes into account an individual's complete medical history and current health status. To determine the most appropriate contraceptive method, healthcare providers must conduct thorough assessments and discussions with their patients. The MEC provides a

framework for these conversations, helping to identify the safest and most suitable options based on an individual's unique health circumstances.

The MEC guidelines cover a wide range of medical conditions, including hypertension, diabetes, migraine, history of breast cancer, and more. These guidelines have evolved over time, incorporating the latest research and medical knowledge to ensure they reflect the most up-to-date information.

The significance of the MEC cannot be overstated. It ensures that individuals can make informed choices about contraception while safeguarding their health. Using a contraceptive method that is not suitable for one's health condition can have adverse consequences, including increased health risks and unintended pregnancies.

The MEC is a valuable tool not only for healthcare providers but also for individuals themselves. It empowers patients to engage in discussions with their healthcare providers about their contraceptive choices, making it a collaborative decision based on the best available medical evidence.

In summary, the Medical Eligibility Criteria for Contraception is an essential set of guidelines that plays a pivotal role in promoting reproductive health. By categorizing contraceptive methods based on safety and potential health risks, the MEC empowers individuals and healthcare providers to make informed decisions. It ensures that the contraceptive method chosen aligns with an individual's unique medical history and current health status, ultimately contributing to safer and more effective family planning. These guidelines reflect the ongoing commitment to advancing the field of contraception, promoting the well-being of individuals, and supporting their right to control their reproductive health.

LONG ACTING REVERSIBLE CONTRACEPTIVES (LARC)

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LARC is reversible ,"forgettable" contraception,All IUDs having failure rates of <1%, Highly Acceptance, more chances of continuation, and High satisfaction level .ACOG and AAP support the use of LARC methods for adolescents.

IUDs are currently approved by the FDA are **Lippes loop - obsolete, Cu-T IUCD - the CuT380A (Paragard), Multiload Cu375,Multiload Cu250, T Cu220, TCu200., LNG - IUCDs Diff types LNG IUDs LNG 52 mg (Mirena, Liletta, Levosert, Avibella), LNG 19.5 mg IUS (Kyleena), LNG 13.5 mg IUS (Jaydess, Skyla).**

Cu-IUDs are plastic T shaped devices with varying amounts of copper wire around the vertical stem, And the horizontal arms of the device in some cases, the total exposed surface area of copper ranges from 200 to 380 mm^2

- Non-T-shaped Cu IUDs are available in other countries.

MECHANISM OF ACTION is to prevent fertilization and **inhibition of implantation.** It causes foreign body copper in the endometrial cavity causing **biochemical and morphological changes** in the endometrium. Copper ions **adversely affect sperm motility, transport, and the acrosomal reaction which prevents fertilization** in the luminal fluids of the genital tract are **toxic for sperm** and **reduce the ability of sperm to penetrate cervical mucus.**

Tubal transit is affected and decreases the fertile window & **apoptosis of the released ovum** is accelerated, **no there is no evidence of ovulation inhibition. COPPER IUD also act as EMERGENCY CONTRACEPTION** The CuT 380A (Paragard) is FDA **approved for EC** and has been shown to be **> 99% effective if used within 5 days (120 hr) after unprotected sex.** Additional benefit of using the Cu IUD for EC is it also provides long-term reversible contraception.

LNG-IUCDs

- **The LNG-IUCDs 52mg (Mirena [Bayer Inc})**
  20 mcg of LNG per day initially and diminishes over time 10 mcg/day after 5 years)
- **LNG-IUS 13.5 mg (Jaydess[Bayer Inc.]**
  14 mcg of LNG per day initially & decreases to 10 mcg after 60 days and 5mcg /day after 3 years).
- **LNG 19.5 mg IUS (Kyleena)**
  T-shaped systems contain a polydiethylsiloxane sleeve containing **LNG on the vertical stem.**

LNG-IUS Mechanism of Action (MOA)

Contains a **progestin reservoir on its vertical stem** slowly releases hormone through a **rate-limiting membrane weak foreign body** reaction and endometrium - endometrial decidualization and glandular atrophy **primary MOA is by increasing amount and viscosity of cervical mucus, so it becomes hostile for sperm penetration. Ovulation is likely inhibited** in some cases but is preserved in most of the users. **Endometrial estrogen and progesterone receptors are suppressed,** bleeding patterns change and may contribute to its contraceptive efficacy.

It reducedes risk of Endometrial Cancer by reduction in endometrial mitoses and estrogen receptor consontration in copper- IUCD users & in LNG-IUS users -- down-regulation of estrogen receptors, low endometrial cellular proliferation, **endometrial decidualization, and atrophic changes protects against, endometrial hyperplasia and endometrial polyps in women on tamoxifen & decrease the recurrence of hyperplastic polyps following polypectomy.**

NONCONTRACEPTIVE BENEFITS of LNG-IUS are

treatment of heavy menstrual bleeding & reductions in menstrual blood loss it improves hemoglobin levels & health-related quality of life & lower the rate of hysterectomy. It improve dysmenorrhea endometriosis and adenomyosis. It is not associated with a reduction in fibroid size and not recommended for emergency contraception.

EFFECTIVENESS it is highly effective Once inserted, not dependent on the user. have high 1-year continuation rates **(up 80%), &** very low failure rates **comparable with laparoscopic permanent contraception copper surface area affect failure rates & larger** total copper area have lower failure rates. TCu-380A was more effective **copper IUCD, use of condoms is still recommended for protection against sexually transmitted infections (STI) and (HIV) infection**

Indications

In the absence of contraindications, IUCD may be offered seeking effective **reversible, coitally independent method of contraception** have contraindications and sensitivities to estrogen. **Breastfeeding mothers are** good candidates for use of IUCD.

Absolute contra indication are Pregnancy. Current pelvic inflammatory disease (PID) or purulent cervicitis. Puerperal sepsis/ Immediately post-septic abortion. Pelvic tuberculosis. Known distorted uterine cavity. Abnormal vaginal bleeding that has not been adequately evaluated. Cervical or endometrial cancer awaiting treatment. Malignant trophoblastic disease with persistently elevated beta-human chorionic gonadotropin levels and active intrauterine disease. Current progestin receptor-positive breast cancer (for LNG-IUS)

IUCD is inserted with caution Past history progestin receptor-positive breast cancer > 5 years ago (LNG-IUS). Severe decompensated cirrhosis, hepatocellular adenoma, or malignant hepatoma. Complicated solid organ transplantation (i.e., graft failure, rejection, cardiac allograft vasculopathy) Postpartum 48 hours to < 4 weeks

Pre requisite for IUC insertion are informed consent, Counselling - **risks, benefits, and alternative methods of contraception. the** potential side effects - **particularly menstrual cycle changes.** reminded that IUCs do not protect against STIs or HIV.

We should do cervical inspection and Bimanual examination and ascertain about uterine position & size as well as any uterine or cervical abnormalities. STI screening **on the day of insertion is a reasonable strategy**

Evidence from 2 systematic reviews - Routine IUD placement to decrease pain or improve provider ease of insertion. A **paracervical block with lidocaine** may reduce patient discomfort during placement and, along with other medications (e.g., NSAIDs, anxiolytics), may be considered on an **individual patient basis,** but these are not routinely recommended, Routine antibiotic prophylaxis for IUC insertion is not indicated no **benefit in routinely administering misoprostol.**

IUCD inserted by no-touch technique to minimize the risk of infection NO instrument should touch any nonsterile surface. The cervix should be cleansed with iodine or chlorhexidine. Tenaculum is applied for gentle traction on cervix.

Uterine cavity is assessted by Uterine sound . IUC inserter is used to insert IUCD in uterus, the strings of IUCD should be trimmed least 2 to 3 cm beyond the external os

BACK-UP Contraception

- **No backup method of contraception is required after the Cu-IUD insertion** regardless in which phase of menstrual cycle it is inserted, **backup method of contraception is required for 7 days after the insertion of a LNGIUS.**

FOLLOW-UP

- A follow-up visit is **suggested 4 to 12 weeks postinsertion. IT IS REQUIRED FOR**
- **exclusion** of infection and expulsion, and assessment of bleeding patterns, and SATISFACTION OF patient and HER partner

A clinical examination IS DONE and string is checked. we can find opportunity to reinforce the issue of condom use for protection against STIs and HIV.

Patient is informed to contact her health care provider if she cannot feel the IUC strings. She or her partner can feel the lower pole of the IUC. She thinks she is pregnant. She uses a Cu-IUD and is amenorrheic she experiences persistent abdominal pain, fever, or unusual vaginal discharge. She wishes to have the device removed or wishes to conceive. She or her partner feel pain or discomfort during intercourse. She experiences a sudden change in her menstrual periods.

SIDE EFFECTS of IUCD are

Bleeding, Pain or Dysmenorrhea, Hormonal Side Effects using LNG-IUS **are acne, breast tenderness, headaches, and altered mood**

RISKS of IUCD are Uterine Perforation, **Infection, Expulsion, Failure of contraception, Potential pregnancy complications,**

adverse pregnancy outcomes if patient is pregnant with IUCD, Amenorrhea or Delayed Menses especially in hormonal IUCD.

MYTHS AND MISPERCEPTIONS are

IUCDs is Not Suitable for Adolescents or Nulliparous women. IUCDs Increase the Risk of Ectopic Pregnancy, IUCs Increase the Risk of Infertility, IUCs Increase the Long-Term Risk of PID An IUC Needs to Be Removed to Treat an STI or PID

TROUBLESHOOTING in IUCD are

Lost Strings, Pregnancy with an IUCD in Place, STI or PID with an IUC in Place. Malposition IUCD, both copper and hormonal IUCD are effective as temporary long term contraception.

PROGESTERONE ONLY PILLS (POP)

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Reliable contraception is a major achievement of the last century and particularly a boon for women of reproductive age. Oral contraception is one of the most effective form of birth control as well as to relieve women from fear of unwanted births and unwanted or illegal abortions.It also helps women determine number and interval between pregnancies. Numerous changes in the composition of the pills were introduced to reduce side effects without compromising efficacy. But still there is a room for the improvement and new discovery. Also known as **Mini Pills -** contain only progestogens and no estrogen. Quite less popular then COCs. Used by not more than 10% of women (Guillebaud et al). Contents of POP areNorethindrone 0.35 mg, Levonorgestrel 0.075 mg, Norgestrel 0.03 mg, Desogestrel 0.075 mg , The preogesterone amount is 50% of that of COCs.

MECHANISM OF ACTION of POP is by thickening of cervical mucus plus and making it impermeable to sperm, Ovulation Inhibition & Making endometrium hostile for implantation. Typical average failure rate of mini pills is 3 to 10% in first year of use but if used effectively failure rate is only 0.5% in first year (Hatcher et al)

MEDICAL ELIGIBILITY CRITERIA

CATEGORY 4 : ABSOLUTE CONTRAINDICATION

- Breast cancer (present / past)

CATEGORY 3 : RISK OUTWEIGH ADVANTAGES

- Breast feeding less than 6 weeks post partum
- DVT/PE at present
- IHD
- Migraine with aura
- Viral Hepatitis
- Liver Cirrhosis
- Anti-convulsant drugs

CATEGORY 2 : ADVANTAGES OUTWEIGH RISK

- Past ectopic pregnancy
- Multiple risk factors (old age, smoking, diabetes and hypertension)
- History of DVT/PE
- Major surgery with prolonged immobilization
- Irregular vaginal bleeding

CATEGORY 1 : NO RESTRICTION OF USE

- Criteria not mentioned in category 2-4
- In general, any age / any parity
- Breast feeding more than 6 weeks post partum
- Obesity
- Hypertension

- Varicose veins
- Endometriosis
- Fibroid Uterus
- Thyroid disorders
- STD

ADMINISTRATION

- Post partum - 6 weeks postpartum. No backup method is required.
- Within first 5 days of cycle no backup method is required
- Any day of cycle use backup method for 2 days (IPPF 2004)

Mini pills should be taken daily at the same time preferably. However, the newly developed Desogestrel only pill is effective even if the time difference is more than 12 hours than routine (Korver, 2005)

MISSING PILLS

- BTB Breakthrough bleeding is one of the major side effects
- Chances of pregnancy are high especially if the pill is missed at the beginning or at the end of the cycle (IPPF, 2003)
- If one or two pills are missed should take as soon as it is remembered
- If 3 or more pills are missed take the dose as soon as remembered and use backup method for next 7 days

SWITCHING FROM ANOTHER CONTRACEPTIVE

- Women can start POPs immediately if she is using another method consistently and effectively. If woman is using Progesterone injection, she can start new pack of POP at time of new injection time. If no contraception is used before, POPs can be started from first 5 days of cycle

INDICATION

- Used with excellent efficacy in lactating women and women aged over 40 years. In lactating women the effectiveness of POP is combined with prolactin induced ovulation suppression. While breast feeding POPs have no adverse effect on milk volume and does not effect infant growth. Breast feeding can be continued for a longer time. POPs are a good choice in all situations where estrogen is contraindicated. POP is a good alternative for women who reports diminished libido or minor side effects like nausea with COCs.

ADVANTAGES

- Contraception, especially in lactating women and elderly women
- No increase in VTE
- No decrease of breast milk
- When estrogen is contraindicated

DISADVANTAGES

- Irregular menstrual bleeding and spotting is a major clinical problem
- Acne, mastalgia, headache
- Amenorrhea in some cases
- The need for regularization of pills timing
- Higher failure rate compared to COCs

MALE CONTRACEPTION

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Contraception is an accepted route for the control of population explosion in the world. Traditionally hormonal contraceptive methods have focused on women. Male contraception by means of hormonal and non hormonal methods is an attractive alternative. Hormonal methods of contraception using testosterone have shown good results. Non hormonal reversible methods of male contraception like reversible inhibition of sperm under guidance are very promising. A birth control pill for men makes more sense to take the bullets out of the gun than to wear a bulletproof vest.

Introduction

The World's population has risen to an alarming level, soon the world population may reach 9.3 billion in 2050 and 10.1 billion in 2100. Hence, the concept of contraception as a method for population control is of paramount importance. In all probability, the earliest contraceptive method known to man is coitus interruptus which is in fact withdrawal of penis before ejaculation. Prolonged lactation was known to have contraceptive qualities from early historic times. Barrier contraceptives made their mark in history with the introduction of condoms made of animal skin. Condoms and vasectomy are the two methods of contraception easily available for men at present.

Prospects of Male Contraception

An ideal contraceptive for men should be easily available, cheap, easy to use, without side effects, not affect libido, and easily reversible & rapidly effective.

Condoms - Various forms of condoms including those made from animal skin and intestines have been in use. Rubber condoms made their appearance in the 20th century and they have a dual purpose of preventing sexually transmitted diseases and acting as a contraceptive. At present, latex condoms and polyurethane condoms are available in the market. However, contraception rates when using condoms are unacceptably high (pearl index = 12).Long term compliance of patients with condom use is known to be generally poor. Condom failure may also occur secondary to condom breakage, slippage and incorrect use. Latex allergies are known to occur with condoms and some users also describe a decrease in sexual pleasure with condom use.

Vasectomy - Vasectomy is a simple surgery performed under local anesthesia wherein the vas deferens is isolated and brought out from the scrotum through an incision followed by division and ligation. It is a safe outpatient procedure used all over the world as a male contraceptive option. Many modified techniques of vasectomy are in use. In the 'no scalpel technique', a simple scrotal puncture is made for the identification of vas which is in turn divided and occluded. The advantages of no scalpel technique include minimal blood loss and low rates of infection. The rate of unwanted pregnancies after vasectomy is generally less than 1%.However, there is delay in the development of azoospermia and effective contraception after the surgery which necessitates the use of an alternate contraceptive like condoms during this period. Another disadvantage of vasectomy is that the reversibility of procedure is not always successful. As the time elapsed from the procedure increases, the reversibility rate comes down. In fact, many patients may also develop anti sperm antibodies which may also bring down the fertility rate.

Other Non-hormonal Methods of Contraception targets at sperm production at the testicular level, sperm maturation at the level of epididymis and sperm motility. Obviously, the selectivity, specificity and lesser side effects compared to hormonal methods make these approaches attractive. However, many of these are experimental and in different phases of development.

Testicular level targets local application of heat on testes, due to their extra abdominal position in the scrotum are at a lower temperature. In fact, occupational exposure of high temperature to the scrotum and testes has been shown to decrease sperm count and produce infertility. Scrotal exposure to hot water bath in combination with testosterone in a clinical study decreased sperm count and motility. Tight scrotal support in a clinical study also showed a reversible decrease in sperm count.

Gosssypol- Gosssypol is an interesting plant extract derived from the cotton plant. It was shown to affect both spermatogenesis and sperm motility. The studies with gossypol have been done mainly on Chinese men. Most users were able to adequately suppress the sperm concentration to levels required for contraception .However, in at least one-fifth of the patients, the effect was irreversible. Other significant dose-dependent side effects included hypokalemia and periodic paralysis.

Triptolide - Triptolide is a Chinese herbal extract from Trypterigiumwilfordii, which was shown to reduce sperm motility and density. However, in animal experiments, the effects were irreversible and the compound was also found to have immunosuppressive properties.

Indenopyridines - Indenopyridines are experimental compounds in development which can affect the sertoli cells and germ cells and induces the proapoptotic factor.

Adjudin - Adjudin is a derivative of lonidamine which was developed as an anticancer drug. Adjudin was shown to disturb the adhesion between sertoli cells and germ cells.

Epididymis - based target are sperm based targets inhibit is sperm motility or increased beating of flagella (hyperactivation) are interesting targets for contraception.

Reversible inhibition of sperm under guidance (RISUG) was developed by Guha and is under research for last two decades in India. RISUG is composed of a polymer of styrene maleic anhydride complexed with the solvent dimethylsulfoxide and is injected in to the vas using a no scalpel technique. It is being developed as an alternative to vasectomy. At present, RISUG is undergoing clinical trials in the United States under the name of Vasalgel.

Soluble adenylate cyclase is another interesting target for inhibiting sperm motility is “soluble” adenylate cyclase (sAC) in the sperm. sAC produces cAMP in the cytoplasm of the sperm which is required for the capacitation of sperm and possibly hyperactivation.

Channel and ion-based targets are transmembrane proteins called CatSpers have been identified which can form a tetramer with another transmembrane protein CatSperbeta.

Vaccine for Contraception - Throughout the history, vaccines have provided solutions for infectious and non-infectious diseases. So, it is not surprising that antigens have been targeted for a male contraceptive vaccine.

The downside of this vaccine includes inconsistent reversibility, requirement of booster doses and also varied efficacy.

Hormonal Approach to Male Contraception - Hormonal targets for contraception are under development for the last four decades. Male hormonal contraception aims to bring a suppression of spermatogenesis using hormonal supplementation. The infertility produced this way should be reversible.

Testosterone Enanthate - In an efficacy trial conducted by World Health Organization (WHO), 200 mg of testosterone enanthate (TE) was given IM weekly to healthy men for a period of 6 months. About 65% of the men became azoospermic after a mean period of four months. Though these trials showed fairly good efficacy there were also a few drawbacks. Weekly intramuscular injections were required.

Testosterone undecanoate is available in oral and injectable preparations. Testosterone gelin combination with depotmedroxyprogesterone acetate (DMPA) also showed that a good number of patients attained oligospermia and azoospermia. They can achieve higher serum testosterone levels and have less skin irritation compared to testosterone patches.

Testosterone progesterone combination therapy was shown to be superior to testosterone alone therapy in suppressing spermatogenesis. Use of etonogestrel implants combined with testosterone pellets subcutaneously in patients showed that high rates of azoospermia can be achieved with this combination. Gonadotropin-releasing hormone-based contraceptive therapy when added to androgen therapy as an adjuvant have been tried in male contraception.

Conclusion

Contraception is considered to be the key answer to population control. Though there are quite a few researches in male contraceptive methods, the actual pharmacological marketing of the products have not materialized in a promising way. This has led to lacunae in contraceptive choices available to men at present. Most men choose vasectomy and condoms as a contraceptive option now. Combinations of testosterone with progestins and newer SARMs have shown good results. Other non-hormonal approaches based on sperm and epididymal targets have exciting possibilities.

BEHAVIOURAL CONTRACEPTION

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Behavioral contraception methods are based on the principle of avoiding sexual intercourse during the most fertile time of the menstrual cycle to prevent conception we should understand physiological changes during the menstrual cycle & functional lifespan of sperm and ova it relies on monitoring and understanding a person's natural fertility cycle to prevent pregnancy.

Key aspects of behavioral contraception are : tracking fertility signs like monitoring changes in basal body temperature and cervical mucus consistency & avoiding intercourse during fertile days behavioral contraception is based on the periodicity of fertility and infertility, a single ovulation in each cycle & the limited duration of viability of the ovum which can only be fertilized 12 to 24 hours after release. A woman's ability to monitor cycle length and/or cycle related symptoms and signs such as changes in the cervical mucous.

Patient selection is important compliance from both partners is required women should be able to monitor signs and symptoms of fertility.

Relative contraindications are irregular cycles & inability to track physiological changes during cycles & lack of supportive partner.

It is beneficial for couples who wish to avoid contraceptive methods because of religious, personal or medical reasons. Those who temporarily lack access to modern methods.

there are two categories of behavioral contraceptives depending on period of menstrual cycle.

Methods that depending on menstrual cycle are

1. fertility awareness based methods (fabm)
2. natural family planning (nfp)

Fabm includes methods that rely on women to monitor physiologic changes during their menstrual cycle whereas nfp relies on the menstrual calendar to distinguish likely fertile from non-fertile days. It is effective when practiced correctly and consistently . Effectiveness relies on a number of various factors: like method chosen & the reliability of the fertility indicators the user's ability to observe the indicators and follow the guidelines the age of the woman and additional use of contraceptive. It requires a high level of diligence, education, communication, and self-discipline.

Advantages of behavioral contraceptive are absence of hormonal side effects, no need for devices or medication, no medical contraindications and potential benefits in terms of understanding one's body and fertility.

Disadvantages are less reliable than other forms of contraception it require strict adherence and consistent monitoring and not suitable for individuals with irregular cycles do not protect against sexually transmitted infections Fertility awareness-based methods

FABMS utilize various techniques to detect at-risk days in the woman's cycle when unprotected intercourse is most likely to result in pregnancy.

There are three approaches used to calculate at-risk days.

FABM technique relies on the biology of ovulatory cycles & fertilization.

Ova can only be fertilized during the 12 to 24 hours following ovulation sperm have capacity to fertilize ova 3 days after deposition in the vagina.

Primary fertility signs are -

Basal body temperature - BBT tracking the temperature in the morning before getting out of bed. Before ovulation - 97.0 to 97.5 degrees f BBT typically drops slightly and then it rises. Just before and during ovulation. Rise in BBT is due to the release of the hormone progesterone produced by the corpus luteum

Sustained rise in BBT confirms ovulation. Fertile window includes days leading up to and including ovulation.

Limitations and considerations is that it conforms ovulations retrospectively

Cervical mucus monitoring Billings ovulation method patient has to test cervical mucus if it is wet and watery it is close to ovlution. When it is wet stretchy and slippery looks like raw egg white it is during ovulation period. In post ovulatory phase it becomes creamy white and cloudy. Cervical or vaginal infections and vaginally administered medications, douching interfere with interpretations of cervical mucus.

Cycle length- based methods

"Calendar method" and "rhythm method" this method assumes ovulation typically occurs around the same time in each cycle. Identify at risk days :

First at-risk (fertile) day each cycle = number of days in shortest cycle minus 18. Last at-risk (fertile) day each cycle = number of days in longest cycle minus 11. Typical use failure rate of 14%

Standard days method ("cyclebeads")

"cyclebeads" - help women to track at-risk days a as most of cycles range between 26 and 32 days fertility is most likely to occur on days 8 to 21.The beads are color coded to alert users to at-risk days and to let them know if the cycle length is outside the appropriate range for the method Red bead represents the first day of bleeding. Followed by 7 brown (safe day) beads cycle beads 8 to 19 represent the at-risk days are colored white. First-year failure rates from the standard days method- 12%. With correct and consistent use - 4.8%.

"Apps" based on cycle length alone

Two-day method

This method simplifies the billings method by decreasing the number of cervical mucus analyses, patient touches her introitus (with finger or tissue) at least once daily or as frequently as each time she urinates to determine by sensation or observation if there is any moisture present, the woman asks, "am i dry today?" If she is dry, she then asks "was i dry yesterday?" Unprotected coitus is allowed only if she has been dry for 2 consecutive days. Total first-year failure rate 14%. With correct and consistent use was 3.5%.

Hormonal testing - ovulation predictor kits Urinary LH from cycle day 10 or 11 to detect the initial LH increase.

Help predict the fertile window, lh surge occurs too close to the time of ovulation and cannot alert couples of impending risk 3 to 5 days before ovulation, lh detection may also be useful as a component in mixed methods.

Mixed methods

Symptothermal methods combines BBT measurement + cervical mucus monitoring. Cycle length methods can also be added to BBT shifts with or without cervical mucus determinations.

Symptohormonal methods method combinations BBTmeasurement & urinary LH monitoring.

Lactational amenorrhea method LAM is temporary method that relies on breastfeeding to suppress ovulation in the postpartum period effective during exclusive breastfeeding.

Lactational amenorrhea method is appropriate for 6 months postpartum in women who are fully breastfeeding their infant and who are amenorrheic During lactation, ovulation is suppressed and cervical mucous is thick

Advantages are no additional method of family planning for 6 weeks

Disadvantages are does not protect against STD'S. and reversal as soon as the breastfeeding is interrupted

Exclusive breast-feeding provides more than 98% protection from pregnancy in the first 6 months following a birth

Cumulative 6-month life-table perfect-use pregnancy rates of 0.5%, 0.6%, 1.0% and 1.5% among women who relied solely on lam

The lactational amenorrhea method (lam) requires 3 conditions. All 3 must be met:, the mother's monthly bleeding has not returned, the baby is fully or nearly fully breastfed and is fed often, day and night, the baby is less than 6 months old ,"fully breastfeeding" includes both exclusive breastfeeding (the infant receives no other liquid or food, not even water, in addition to breast milk) and almost-exclusive breastfeeding (the infant receives vitamins, water, juice, or other nutrients once in a while in addition to breast milk). "nearly fully breastfeeding" means that the infant receives some liquid or food in addition to breast milk, but the majority of feedings (more than three-fourths of all feeds) are breast milk.

Methods that do not depended on the menstrual cycle are

Abstinence

Abstinence means the complete avoidance of sexual intercourse, not having sexual intercourse is the only 100% effective way to prevent pregnancy, abstinence is a behaviora lifestyle choice people that choose abstinence may use the method intermittently and not continually.

Coitus interruptus or withdrawal method. In this discharge of semen is done outside the female genitalia at the end of sexual intercourse. withdrawal is always available can be used with any coital act at any time in the cycle. It is one of the only methods available for the men Advantages are no needs for appliances or medical supervision, no harmful effects. Disadvantages are It is stressful, having high failure rate & risk of accidental deposition of sperms into the vagina.

Behavior method needs motivation, compliance from both partners, proper understanding of physiological basis by the user, detailed instructions and guidance required by the provider, complexity of learning curve. Because of higher failure rates with typical usage of behavior contraceptive backup methods is required.

SAHELI

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The Government of India understanding for the need of population control is reflected in the launch of Family planning program by the Ministry of Health in 1952. In 1960, Central Drug Research Institute (CDRI), Lucknow was put forth to come up with suitable contraceptives for family planning. The US-FDA approved Enovid contraceptive action was based on ovulation suppression and had troublesome side effects. In 1958, Lemer et al described the first non-steroidal oestrogen antagonist, MER 25,which did not affect ovulation while exhibiting anti-oestrogenic actions, eventually preventing pregnancy. CDRI worked with the aim of developing such contraceptive that would prevent pregnancy, while leaving the hypothalamus-pituitary-ovarian axis undisturbed and avoid steroidal side effects as the Spacing-based contraception is targeted at young women in whom retention of normal reproductive physiology along with good contraceptive action is preferred.

In 1967, a chroman derivative was developed 67/20 by CDRI. The World Health Organisation allotted the INN : Ormeloxifene. Animal testing showed potential contraceptive action in 1968. In 1970, preclinical development including regulatory animal toxicities was done. In 1971, the brand name Centchroman was given and Phase I, II and III trials were carried out between 1972-1987. By 1989, the desired drug dosage was confirmed. Drug Controller General of India, DCGI approved it for marketing in 1990 and Hindustan Latex Ltd. Life care got licenced and launched as “Saheli” for marketing.

Centchroman is a mixture of d- and l- isomers. It is stable at room temperature. It is an oral preparation and the drug is metabolised at the liver. The onset of action occurs in less than sixty minutes and plasma half- life is around one week. It exerts oestrogen antagonistic action in Uterus and Breast. There is no action on vaginal nor cervical epithelium. Proliferation of endometrium is suppressed due to endometrial receptors down regulation. The resulting utero-embryonic asynchrony cause implantation failure, thus exerting contraceptive action. It does not affect the functions of Ovarian, pituitary and hypothalamus. It is secreted in breast milk. It is known to exert weak oestrogenic actions on the bones.

Centchroman is given at a dose of 30mg biweekly for 3 months followed by once in a week as long as contraception is desired. Study has shown acceptable pregnancy protection with Pearl index of 1.83 and the cumulative pregnancy protection by lifetime analysis at 12 months was 1.63 ± 0.74.

Cenchroman should be started from first day of period and the second dose is to be taken 3 days later. This biweekly regime is to be given for 3 months. By fourth month, it is given weekly starting at the first pill day, irrespective of cycle and continued as long as pregnancy is desired.

The side effects of Centchroman are few. Delayed menstruation has been noted in 8 % of menstrual cycles. Ovarian enlargement has been noted due to functional ovarian cysts; but it tends to resolve by itself once intake is stopped. Scanty menstruation can happen, but need no active intervention. Missed pills can be an issue, but depending on number of days missed and back-up method, pregnancy can be avoided. It is advisable to take a pill as soon as possible. In case of missed pill between 1-7 days, normal schedule can be continued along with back up method, e.g. Condoms. Back up method should be used

till the next period. If missed pill is more than 7 days, it is advisable to start like a new user. For regular user, periods delayed by more than 15 days should test for pregnancy.

Centchroman should be avoided in cases with polycystic ovarian disease, chronic cervicitis, those with recent history of jaundice or liver disease, allergy and chronic illness like renal disease or tuberculosis.

Despite its efficacy and minimal side effects, widespread use is still far from reality. The National health mission suggests the following to increase use of compliance among target population :

1. Assurance of help whenever required, in case of issues like wanting another method of contraception, change in health status, etc
2. Encourage to come before pills supply run off
3. Enquire to the provider regarding -
    a) Status of the pill with the client, whether satisfied or if she has issues
    b) Problems with pill intake, e.g. forgetting to take pill
    c) Problems with menstrual changes
    d) Changes affecting her needs, e.g. wanting pregnancy

It seems likely that less widespread use of Cenchroman can be attributed to lack of awareness with Health care givers too, who need to inform the client about the contraceptive benefit of Centhroman. The various noted advantages of centchroman are its efficacy of 97-99%, lack of steroidal / hormonal side effects, less frequency for administration, no reported teratogenicity, carcinogenicity nor mutagenicity and quick return of fertility. Hence, Centchroman as contraceptive is effective, safe during lactation with minimal side effects.

Role of Cenchroman is evolving aside from contraceptive use. Its potent antioestrogenic action is being studied for the treatment of abnormal uterine bleeding, mastalgia and cancer. Its weak estrogenic feature is being explored for the treatment of osteoporosis and cardiovascular disease.

Centchroman is being distributed freely as Chhaya by the Government of India under family planning program. It is also available in market as Novex, Sevista, Ormefen, Orserm, Ormexi, Dubalex, Centron Plus, Genlox DS, Ormalin, Ormetect.

ADVANTAGES OF CONTRACEPTIVES

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Usage of contraception is the need of the hour. During the last 50 years contraceptive pills are continuously improving. Estrogen concentration is reduced without reducing its efficacy. Newer generation of progesterone are researched having less androgenic side-effects, impact on carbohydrate and lipid metabolism is negligible, potent inhibitor of ovulation and used in treatment of acne and hirsutism

Cocs are monophasic biphysic and multi physic according to the content of estrogen and progesterone.

Action of COC - by decreasing pulse frequency of GnRH from hypothalamus, it prevent ovulation by suppressing FSH and LH levels, it causes cervical mucus thick thus sperm penetration is inhibited & endometrial thinning result in failed implantation

Efficacy of COC depends on its regular and timely intake. If taken regularly efficacy is 99.7%. With incorrect use efficacy drop to 92%

Recommendation of COCs - It can be given to all women including adolescent and perimenopausal women. Even in non-breastfeeding woman COC can be started. In breastfeeding, woman COCs can be started six months post partum. It can be given even after abortion

Contra indications of COC are hypertension, diabetes, liver disease, DVT migraine, obesity, cardiovascular disease, breast cancer, stroke and HIV

Initiation of COC - First day start when pill is started from first year of period contraceptive efficacy is attained faster. **Quick start** OCP is started on any day of menstrual cycle but first seven days are not protected. **Sunday start** COCs started on first Sunday after cycle But additional method is required for first seven days. After abortion, OCP can be started within first 7days. In postpartum period COC is started after 21 days and in breastfeeding woman first42 days are to be avoided.

Depending on withdrawal bleeding COC are-**cyclic** causing monthly bleeding **extended cyclic** in which bleeding occurs every three months and **continuous** dosing which causes only breakthrough bleeding.

Non-contraceptive usage of COCs are menstrual disorders, dysmenorrhea acne and hirsutism premenstrual syndrome, ovarian cyst, endometrial hyperplasia, increasing bone density, benign breast diseases, endometriosis, endometrial cancer, ovarian cancer, colon cancer, menstrual migraine and rheumatoid arthritis.

Monitoring of COC patient should be counseled for potential adverse effect and to report in cases of sign and symptom of severe adverse reaction occur. Annual visit with her primary care provider should be done for monitoring of BP and blood sugar. Monitoring should be done on regular basis.

COC are safe and effective method of contraception, but it should be used judiciously.

ORAL CONTRACEPTIVE PILLS - DISADVANTAGE

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Oral contraceptive pills are widely used for multiple indications, for both contraceptive and non contraceptive indications. As mortality due to abortions takes 14% share of Maternal mortality world wide, we have to see them as a boon in most situations, but they could be a necessary evil in others. Therefore at the outset Benefits of OCP's are enumerated.

Benefits of oral contraceptives

It is Reliable, Convenient, Improve menstrual regularity, prevent ectopic pregnancy, long term use is indicated, there is high compliance and continuation rates among adults. They cause reduction in incidence of ovarian cancer, endometrial cancer benign breast neoplasm and rheumatoid arthritis. But the question remains, can they be given it to everyone? Obviously, the answer is a big NO. So what are the conditions where they cannot be given?

Absolute Contraindications are Pregnancy, past or current thromboembolic disorders, stroke or coronary artery disease, breast cancer or other estrogen-dependent cancer, benign or malignant liver tumor, undiagnosed abnormal vaginal bleeding. But there are other conditions where OCPs can be given, but with extreme caution. These are called the relative contraindications and are now enumerated.

Relative Contraindications are Age > 35 years, use of tobacco, hypertension, migraine headaches, diabetes mellitus, cardiovascular disease, gallbladder disease. Cholestasis during pregnancy, Hepatitis, Sickle cell disease Lactation, Major depression and Surgery or fracture. Although hypertension is not considered an absolute contraindication for oral contraceptive use, blood pressure should be measured before initiating oral contraception and monitored it use.

Side effect of ocps witch prevents use are Mild nausea, flushing, dizziness, sadness, irritability, weight gain due to fluid retention, anabolic action, or both. Acne and/or a rise in pigmentation are examples of skin alterations. Variable duration amenorrhea after stopping the pill.

Major Adverse effects of oral contraception are

Thromboembolism, There is an increased risk of - deep vein thrombosis, cerebral thrombosis, and pulmonary embolism.

The risk is affected by the amount of the oestrogen component. The little dose of the Pills reduces this risk. The drug should not be taken by anyone who has- cerebral apoplexy, thromboembolic conditions, thrombophlebitis, or a history of any of these issues.

Symptoms

Such as vascular headaches, leg cramps, altered vision, or hypertension, should prompt a permanent discontinuation of the medicine.

OCPS Effects on Gynecologic cancer

Cervical cancer **-** In epidemiologic studies the risk of invasive squamous cell cervical tumors is increased in women who use oral contraceptives for >1 year compared to nonusers. Women who have

used oral contraceptives for 5 or more years have a higher risk of cervical cancer than women who have never used oral contraceptives. The longer a woman uses oral contraceptives, the greater the increase in her risk of cervical cancer. However, the risk of cervical cancer has been found to decline over time after women stop using oral contraceptives.

Breast cancer who were currently using oral contraceptives had a 24% increase in risk that did not increase with the duration of use. Risk declined after use of oral contraceptives stopped, and no risk increase was evident by 10 years after use had stopped However, nearly all of the increased risk was seen among women who took a specific type of oral contraceptive, a "triphasic" pill, in which the dose of hormones is changed in three stages over the course of a woman's monthly cycle. The risk increase varied from 0% to 60%, depending on the specific type of oral combined hormone contraceptive. The risk of breast cancer also increased the longer oral contraceptives were used.

In Cardiovascular Disease The increased risk of cardiovascular disease in oral contraceptive users is due to- venous or arterial thrombosis, not to atherosclerosis. There could be occurance of fatal and nonfatal thrombotic and hemorrhagic stroke (including subarachnoid hemorrhage), venous thromboembolism, and elevated systolic blood pressure.

Hypertension : It occurs in about 5% of users after five years and is connected with usage frequency. It most likely stems from the oestrogen-induced increase in angiotensinogen Cigarette smoking was subsequently shown to be a definite confounding factor for the risk of myocardial infarction and stroke when combined with oral contraceptive use.

The odds ratio for users of oral contraceptives containing either third-generation progestogen was 9.1, compared with 3.5 for users of oral contraceptives containing the second-generation progestogen levonorgestrel. Several recent epidemiologic studies have confirmed that the risk for venous thromboembolism is increased among women who use oral Contraceptives containing desogestrel or gestodene.

Factor V Leiden mutation

A 1995 Dutch study cautioned that when carriers of the coagulation factor V Leiden mutation, who are resistant to downward regulation of thrombin formation by activated protein C, use desogestrel-containing oral contraceptives their risk for development of deep vein thrombosis increases about 50 fold with respect to the risk of healthy nonusers.

Stroke

The absolute risk of young oral contraceptive users for development of stroke was small and insignificant, but the risk of women >35 years old who smoked or who did not have their blood pressure checked before starting to use oral contraceptives was increased 3-fold with respect to that of nonusers. The odds ratio for hypertensive women was >10.

Modern pills

The modern low-dose oral contraceptives, including those containing 30 ìg estrogen and a third generation progestogen, appear to raise blood pressure somewhat but not significantly. Because hypertension increases the risk of acute myocardial infarction in users of oral contraceptives and an occasional patient using a low-dose oral contraceptive may have hypertension develop, it is prudent to monitor the blood pressure of users annually and to advise patients with marginal cardiac reserve to use another mode of contraception. Effects of oral contraceptive discontinuation The cardiovascular risks associated with oral contraceptives do not appear to persist after use is discontinued.

Migraine

Because estrogens are vasodilators, they may cause or worsen migraine headaches. Women with classic migraines (true vascular headaches) and associated neurologic symptoms should be advised to use another type of contraceptive. Studies with high-dose oral contraceptives have linked these headaches with strokes.

GERD, Depression, GB Stones

Progestogen can cause smooth muscle relaxation- This is commonly manifested as an increase in gastroesophageal reflux, It may also worsen preexisting depression, a condition that remains undiagnosed in many women. Use of progestogen in women with a history of gallbladder disease or stones can lead to symptomatic attacks such as cholestatic jaundice (particularly in women who had jaundice during pregnancy) and to cholecystectomy.

The liver and the gall bladder:

Alkaline phosphatase and plasma conjugated bilirubin may rise in as many as 2% of individuals. Both estrogens and progestogens may be involved in the development of acute hepatitis in women. As a result, the medicine needs to be stopped and shouldn't be started again until the liver function tests have been normal for at least six months. Women on the pill experience gallstones twice as often as non-users

Disadvantages Oral contraceptives

require use of a barrier method to protect against sexually transmitted diseases, may increase the prevalence of vaginitis caused by Candida species, require prolonged use, regardless of the frequency of sexual intercourse, are relatively expensive, usually are not covered by American medical insurance plans, and require access to a health care provider for a prescription may decrease libido, may cause irreversible chloasma (patchy facial pigmentation) when users are exposed to the sun, and may result in minor abnormalities of laboratory values, such as elevated thyroxine levels.

Interactions with other drugs

Reduced contraceptive efficacy.

Drugs that stimulate the metabolic capacity of the liver can adversely affect the efficacy of oral contraceptives. Patients being treated with rifampin, penicillin, tetracycline, phenobarbital, phenytoin, primidone, carbamazepine, and possibly ethosuximide and griseofulvin may therefore need to use another mode of contraception. Potentiation and clearance rates of other drugs. Oral contraceptives may potentiate the action of diazepam, chlordiazepoxide, tricyclic antidepressants, and theophylline. Lower doses of these drugs may therefore be effective in users. Conversely, users may require higher doses of aspirin or acetaminophen because oral contraceptives affect the clearance rates of those drugs.

Centchroman

Disadvantages

Polycystic ovaries ought to stay away from it because it might cause ovarian hypertrophy,It should also be avoided by those with tuberculosis, liver disease, renal failure, and nursing mothers

Conclusion

Oral contraceptives seem to have their main effect on mortality while they are being used and in the 10 years after use ceases. Ten or more years after use ceases mortality in past users is similar to that in never users. Use oral contraceptive pills, BUT remember- contraindications, relative contraindications side effects and drug Interactions.

VASECTOMY

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Vasectomy is usually a neglected topic. As of now, the current population of the world in 2023 is 8 billion + and there is 0.88% rise from that of 2022. The expected population after 14.5 years will be 9 billion and that after 20 years will be 10 billion. Being gynecologists is an important responsibility of the health care system and so we must know this aspect of reproductive health to help population control and related social stability in a broad spectrum. **Some FACTS-about vasectomy,** first we must accept that usually males try to avoid and keep neutral during we counseling the couple about family planning. Secondly we all gynecologists are very much okay, if the couple accepts tubal ligation. Thirdly, we were not taught to perform vasectomy in our PG curriculum in gynaecology, sadly we always avoid accepting that we should perform vasectomy. Recently the new batches are probably taught this surgery, but I am not sure about it. And thus vasectomy is always neglected by all husbands and all gynecs. Both. Let us know the details about vasectomy -

Definition - Vasectomy is a surgical method of male sterilization for permanent birth control; that cuts the supply of sperm into seminal stream. It's done by cutting and sealing the tubes that carry sperms. (Vasa Deferentia) Vasectomy has a low risk of problems and can usually be performed in an outpatient setting under local anesthesia. In 1974, China - the **NSV** (No Scalpel method of vasectomy) was developed by Dr. Li Shunqiang. He was looking for a way to perform the procedure that would be more readily acceptable to men, as Chinese men did not widely accept it at that time. By 1985, the NSV method made its way into America too. R. Harrison of London performed the 1st human vasectomy, not for sterilization purposes, but to bring about atrophy of the prostate. During the Second World War,1939 1945 vasectomy was finally regarded as a method of birth control. The 1st vasectomy program on a national scale was launched in 1954 in India.

Anatomy : The vas deferens is 45 cm long tail of epididymis in scrotum, it ascends posteriomedial to the testis & epididymis & travels superiorly through the inguinal canal, as part of the spermatic cord. This long muscular tube runs from the epididymis into the pelvic cavity behind the bladder and connects to urethra through a structure called the ejaculatory duct.

Surgical Technique : Vas is cut and ligated under scrotal skin by NSV method using a Ring forceps and a small puncture.

Post Operative advice : 1. Abstinence from sexual intercourse till pain & swelling subsides. 2. Use of other contraceptives advised, at least 6 weeks till repeat sperm count comes to zero.

Anatomical & Practical Benefits of Vasectomy Vs Tubal Ligation. : Fallopian tubes are intra-abdominal but Vas deferens is under scrotal skin. i.e very much superficial for easy surgical access. So no risk of visceral injury. Tubal Ligation needs either spinal or short GA or LA + sedation. Needs an anesthetist to avoid any discomfort to her, whereas vasectomy is done by small nick under LA. NSV technique avoids any stitches and is so minimally painful. TL needs a stitch as layers of abdomen are opened. Surgical time is less & post op. recovery is earlier. Complications are rare and minimal.The increasing incidence of CS increases potential risk of adhesions and bowel injury. No such risk involved as the abdomen is not opened in vasectomy.

Social scenario : Why it's not a preferred method of sterilization,despite so many benefits. causes- are medico social un-awareness about benefits & family planning concepts.

Myths about vasectomy : Difficulty for sexual act, impotence may occur, can't do any heavy work etc. patriarchal mindset : pregnancy, delivery , breast feeding and child-bearing, these 4 imp things borne by women. As a part of Nature, automatically and conveniently next things to avoid pregnancy have purposely shifted to her. so it's a **"Clever Rescue"** thought by men & patriarchal mindset. Misunderstanding of family planning concept. contraception is not only responsibility of female partner Wrong Concepts are *Vasectomy protects against STDs & HIV infection and vasectomy will make a man impotent & reduce his sexual drive.

Male Ego also leads to decrease incidence of vasectomy.

Global Prevalence : Statistics : Indian Scenario : The prevalence & acceptance of vasectomy in India has fallen from 74.2% (proportion of all sterilizations) in 1970 to 4.2% in 1992. Barriers in the organizational structure and poor access to services may contribute to the decrease in vasectomies. Between 2017 and 2018, 93.1% tubectomies & only 6.8% were vasectomies, stated another report by the National Health Mission, a family planning initiative by the government of India. **30-Apr-2022** India's latest health data shows that nearly 38% Tubal Ligation but only 0.3% vasectomies.

Suggested Protocols : Counseling.

The following recommendations for counseling patients about vasectomy may help to minimize the risk of litigation for family physicians who provide vasectomy services : conduct a personal consultation with the patient. Use Audio visuals .discuss the impact of vasectomy on sexual function. explain the procedure using diagrams during the visit for the physical examination, Explain possible minor complications & risks, including failure. explain the need for a postop. semen analysis and the need to use another contraceptive method for 3 months, after vasectomy. emphasize the permanence of the procedure. Make the patient read and sign an informed consent form. provide preoperative and postoperative instructions. answer questions and respond to concerns, & make telephone call to the patient the next day to enquire by a fair talk & get feedback.

Counsel : Benefits of vasectomy

Vasectomy is an excellent method of permanent contraception for the couple whose family is complete, who are mature and fully informed, and who will accept permanent sterility. It is also valuable in preventing bacterial epididymitis. Manhood, pleasure, and sensation are unchanged, and the woman no longer needs to fear the possibility of an unwanted pregnancy.

Complications of Vasectomy : The specific complications of vasectomy include spermatic granulomas of the vas and epididymis, congestive epididymitis, and antisperm antibodies. Numerous studies have reported no deleterious effects upon the patient's general health. So, counsel about facts & remove fear & myths. Performance of vasectomy as an office or clinic procedure - anesthesia & surgical techniques & post op care. He must also understand that sterility is not immediate. The couple`s every question must be answered. Counseling may take the form of movie clips, booklet or conversation with a trained counselor or surgeon. Before decision making, the couple must know vasectomy is a permanent method of birth control & not easily reversible. It is a safe & effective & day care procedure of a few hours only.

A special vasectomy clinic is also a good practical solution. **World Vasectomy Day** is celebrated and details are available on **WorldVasectomyDay.org** If we Drs are convinced about the need & benefits in concern with the Population Control, we must dream for NSV to make a popular, preferred method.

PPIUCD - PRESENT SCENARIO

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The introduction of the Post-Partum Intrauterine Contraceptive Device (PPIUCD) in India has revolutionized family planning in the country. In India, in the very 1st year of postpartum 65% of mothers have an unmet need for family planning. To avoid shorter interconceptional period for those women we need this long-acting reversible form of contraception which is effective for about 5-10 years depending on the type of device used. It is a safe and effective method of contraception which is gaining popularity in many countries.

Since its introduction in India in 2007, PPIUCD has seen increasing acceptance and uptake. In 2009, Jhpiego started providing technical assistance to the GoI for strengthening PPFP/PPIUCD services in the states of Jharkhand and Uttar Pradesh through the support of USAID. The pilot began with first batch of clinician training in the same year at Queen Mary Hospital, Lucknow. Simultaneously, National Training Centre at Safdarjung Hospital in New Delhi and 3 regional training centers in Mumbai, Jabalpur and Lucknow in 2009-2010 were established. In 2019, the Indian government launched the Pradhan Mantri Surakshit Matritva Abhiyan (PMSMA), a national program to provide free PPIUCD services to all pregnant women. This program has been instrumental in increasing access to the device in rural areas, where it was previously unavailable.

The PPIUCD program has been successful in reducing the number of unintended pregnancies in India, and has been credited with helping to reduce the maternal mortality rate in the country. According to a 2020 report from the World Health Organization, India's maternal mortality rate has dropped from 174 deaths per 100,000 live births in 2010 to 122 deaths per 100,000 live births in 2019.

Despite the success of the PPIUCD program, there is still more work to be done in order to ensure that all women in India have access to the device. A 2019 study found that only 14% of women in India were using PPIUCD, which is significantly lower than the global average of 25%. In addition, there is a lack of awareness of the device among rural women, which is a major barrier to its uptake.

What is PPIUCD?

It is Copper 380A. Comes in regular and Safe Load varieties with monofilament string. Effective for up to 12 years; approved for 10 years of use

After intrauterine insertion It acts by decreases sperm motility and function, Interferes with ability of sperm to pass through uterine cavity & alters the uterine and tubal environment; thus prevent pregnancy before fertilization occurs.

- **Timings of insertion :**

  IUCDs can be inserted postpartum

  - Right after birth = Postplacental (10 minutes after placenta)
  - Soon after birth = Immediate postpartum (< 48 hours after delivery)
  - During cesarean section = Intracesarean
  - Four or more weeks postpartum

  IUCDs should not be inserted between 48 hrs and 4 weeks

Advantages

The advantages of PPIUCD are many. Firstly, it is long-acting form of contraception which may be effective for up to 10 years. It is convenient for both beneficiary (mother) & service provider as it has fewer side effects & discomfort. This means that a woman does not have to worry about taking a pill every day or using a barrier method of contraception every time she has sex. Learning curve is minimum for the inserter. Secondly, Effectiveness : > 99% effective (6 8 pregnancies per 1 000 women in first year); effective immediately upon insertion & immediate return to fertility once removed.

it is a safe and effective method of contraception which is suitable for women who cannot take hormonal contraceptives due to medical reasons. Thirdly, it is a convenient form of contraception as it does not require any regular follow-up visits to the doctor. Fourthly, it is a cost-effective form of contraception as it does not require any regular follow-up visits to the doctor and the device can last for up to 10 years. Lastly, it is a discreet form of contraception as the device is inserted into the uterus and is not visible to others when the woman is highly self motivated because of tiring labour experiences. It is good for lactating woman because it has no effect on the quantity or quality of breast milk.

Demerits & limitations

it is not suitable for all women as it requires a medical procedure to insert the device into the uterus. It does not protect against sexually transmitted infections and diseases; rather it is contraindicated if STDs coexist. Minor side effects such as pain, bleeding and infection may occur. Expulsion rates vary from 3 37%. In general, expulsion rates for PPIUCD range between 10 14%.Good technique can reduce expulsion to 4 5% . Post placental expulsion rates are lower than postpartum expulsion rates

IUCDs should <u>NOT</u> be used if a woman :

- Is pregnant (known or suspected)
- Has unexplained vaginal bleeding
- Has current PID, gonorrhea, or Chlamydia
- Has acute purulent (pus-like) discharge
- Has distorted uterine cavity
- Has malignant trophoblast disease
- Has known pelvic tuberculosis
- Has genital tract cancer (cervical or endometrial)

Cause of Non-Acceptance

The cause of non-acceptance of PPIUCD is mainly due to the lack of awareness and education about the device. In many states of the country, women are not aware of the device and its benefits and hence, they are not willing to try it out. In addition, there is a lack of access to the device in many countries due to the high cost of the device and the lack of trained health care providers. Furthermore, there is a lack of culturally appropriate information about the device which can make it difficult for women to make an informed decision about using the device.

Conclusion

In conclusion, PPIUCD is a safe and effective form of contraception which is gaining popularity in many countries.In order to ensure that all women in India have access to PPIUCD, the government must continue to invest in awareness and education campaigns to increase knowledge of the device. In addition, more resources must be allocated to rural areas in order to provide access to PPIUCD services.

CONTRACEPTION IN THE EXTREMES OF AGE

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For a few years after attaining menarche and a few years before menopause, most women do not use any form of contraception although they are sexually active. Lack of knowledge about contraception in the first few years, and ignoring the importance of it in the final years of reproductive life are the major reasons for unplanned conceptions in this age groups. Pregnancy has increased health risks both in the mother and the child in both these groups. On the other hand, there are several health concerns too, which are to be kept in mind, while prescribing contraceptives for them.

Contraception in Adolescents

Adolescence isdefined by WHO as an individual in 10-19 years of age. They represent one fifth of the world population. This group is known to acquire increasing autonomy through physical, behavioral and emotional change. This involves experimentation, which may include alcohol, smoking and sexual activity.

Complication due to pregnancy and childbirth is the leading cause of death in girls 15-19 years. Globally, around 11% of total births occur to women less than 20 years. In South East Asia one out of five girls become pregnant before turning 18 while in India 9% of girls in 15-18 years get pregnant yearly.

If one contemplates on the difficulties in implementing the contraceptive practices in this age group, the following factors emerge.

- Lack of desire to avoid, delay or space childbearing.

  Due to early marriage, there is social acceptance of pregnancy in teenage and encouragement to bear a child. The girl also feels a pressure to prove her fertility.

- Lack of self-assurance and independence to use contraception.

  Young girls are hesitant to admit that they are sexually active and embarrassed to seek information regarding contraception. They do not have the position to take decisions in the family. Neither do they have the financial autonomy to do so.

- Lack of access to contraceptive services.

  If they overcome the first two barriers at all, they do not often know where to go for seeking contraceptive service. Privacy and confidentiality are often lacking in crowded Government OPDs. Adolescent clinics have come up in different states now, which cater to this group.

- Lack of competent, caring, committed Health Service providers.

  The health care providers are often not knowledgeable enough, judgmental, and disrespectful. The girls never come for follow up to such clinics.

The Contraceptive CHOICE project, the famous prospective cohort study undertaken in the West found that the provision of free contraceptives to adolescents reduces teen pregnancy, teen birth and abortion. The Teenagers are likely to choose LARC if they do not have to pay for them. **Rashtriya Kishor Swasthya Karyakram** launched in 2014 for 10-14 age group has improvement of sexual and reproductive health as one of its objectives.

The tiered approach of WHO which recommends using LARC, which are more effective, applies to this group too like others and a LARC like IUD is a safe first line choice.

No method of contraception is contraindicated on the basis of age alone. WHO (2015). Prompt initiation is to be done without waiting for the next menses while advising on any method of contraception, provided pregnancy is excluded. Information about Emergency contraception does not encourage unprotected intercourse, contrary to popular notion, and needs to be given where indicated.DMPA the advantages far outweigh the theoretical risk of fractures due to bone loss. Regarding CHC, the benefits of relief of dysmenorrhea, acne, hirsutism and anemia are the added advantages of prescribing this form of contraception. As for Barrier methods, dual use is to be encouraged to protect from STI.

"Meeting the unmet need for modern contraception of women aged 15 19 would reduce unintended pregnancies among this group by 6 million annually. This would mean averting 2.1 million unplanned births, 3.2 million abortions and 5600 maternal deaths." - Darroch J et al 2016.

Contraception in women in their forties.

Healthcare practitioners (HCPs) should advise women that pregnancy and childbirth after age 40 confer a greater risk of adverse maternal and neonatal outcomes than in women under 40. They should advise that Contraception should be used in women till menopause to prevent pregnancy. At the same time gynaecological assessment and investigations should be done immediately if there is any change in bleeding pattern irrespective of the contraceptive method used.

Some of the health concerns that are to be kept in mind while prescribing any medication in this age group are obesity, hypertension, hyperlipidaemia, stroke, thromboembolism, coronary heart diseases and cancers like breast, endometrial, cervical and others.

Regarding the choice of contraceptives, the following are to remembered. Natural family planning methods become unreliable due to irregularity in menstrual cycles due to anovulatory cycles. Condoms should be promoted as they prevent STI. Condom's efficacy is more too, due to declining fertility in this age. If they want sterilization, it is better to counsel them in favor of LARC, as it is equally effective with no surgical risk. LNG IUD is an excellent choice for women with excessive uterine bleeding and dysmenorrhea. Regarding Cu IUD, extended use till 1 year after menopause may be done if inserted at <50 years of age or 2 years if >50 years of age.

As for Combined hormonal contraceptives, one needs to be a little cautious because of the increased risk of arterial and venous thromboembolism. But the advantages are plenty, in the women who are eligible, with no contraindication to their use from medical point of view. The Reduced risk of ovarian and endometrial cancer that lasts for several decades even after cessation of use is to be kept in mind. It maintains BMD compared with non-use of hormones in the perimenopause. CHC with =30 ìgEthinylestradiol should be considered as the first-line CHC preparations for women over 40. CHC with Levonorgestrel or Norethisteroneas the progesterone component should be considered as first-line CHC preparations for women over 40, as third generation progesterones have a slightly elevated risk of venous thrombosis. Women aged 50 and over should be advised to stop taking CHC and use an alternative, safer method of contraception. FSRH guidelines on stopping to use contraception with menopause include the following

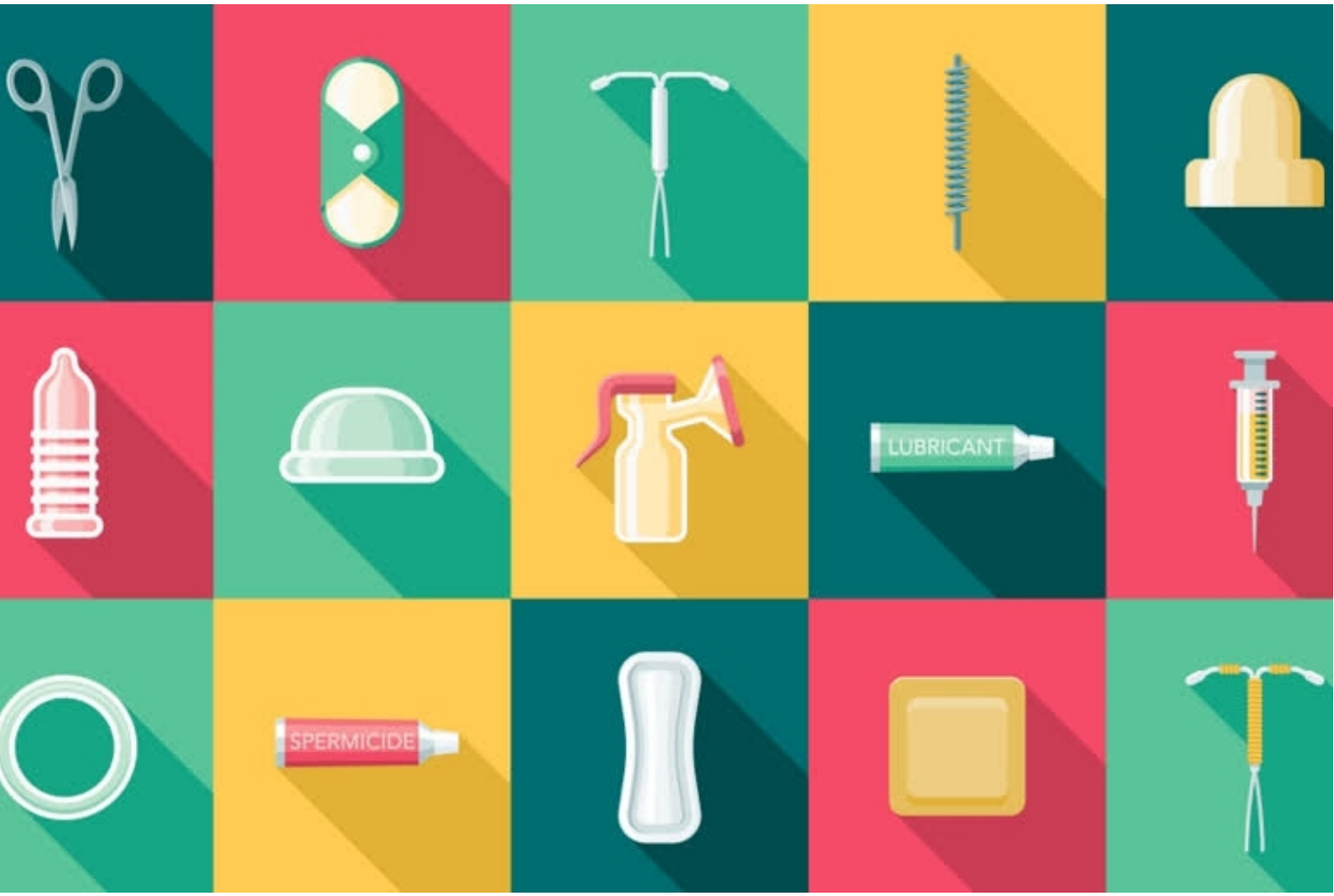
Table 8: Recommendations regarding stopping contraception

Contraceptive method	Age 40–50 years	Age >50 years
Non-hormonal	Stop contraception after 2 years of amenorrhoea	Stop contraception after 1 year of amenorrhoea.
Combined hormonal contraception	Can be continued	Stop at age 50 and switch to a non-hormonal method or IMP/POP/LNG-IUS, then follow appropriate advice.
Progestogen-only injectable	Can be continued	Women ≥50 should be counselled regarding switching to alternative methods, then follow appropriate advice.
Progestogen-only implant (IMP) **Progestogen-only pill (POP)** **Levonorgestrel intrauterine system (LNG-IUS)**	Can be continued to age 50 and beyond	Stop at age 55 when natural loss of fertility can be assumed for most women. ▶ If a woman over 50 with amenorrhoea wishes to stop before age 55, FSH level can be checked. ▶ If FSH level is >30 IU/L the IMP/POP/LNG-IUS can be discontinued after 1 more year. ▶ If FSH level is in premenopausal range then method should be continued and FSH level checked again 1 year later.
		A 52mg LNG-IUS inserted ≥45 can remain *in situ* until age 55 if used for contraception or heavy menstrual bleeding.

FSH, follicle-stimulating hormone; IU, international unit.

Some women in this age group may need HRT to take care of menopausal symptoms like hot flushes. Sequential HRT does not provide contraception. A contraceptive needs to be prescribed separately. CHC can be used in eligible women under 50 as an alternative to HRT for relief of menopausal symptoms and prevention of loss of BMD in such cases. All progestogen-only methods of contraception are safe to use as contraception alongside sequential HRT. POP, IMP and DMPA although used to prevent pregnancy, are not recommended for endometrial protection with Estrogen-only HRT.

LNG IUD, when used for endometrial protection with Estrogen replacement therapy, needs to be changed every 5 years.



CONTRACEPTION UPDATE

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