

Permanent Sterilisation to Long-Acting Reversible Contraception: Is a Paradigm Shift Necessary?

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Abstract The concept of family planning originated as birth control in 1912 to control the size of the family and prevent unplanned pregnancies transformed to family welfare and later on expanded its horizons to reproductive and child health (RCH). A wide spectrum of choices both for male and female, temporary and permanent, have been

developed and offered. Developed world having stabilised population faces problem with teenage and adolescent pregnancies. Developing nations are still struggling to stabilise population and traditionally depend on permanent female sterilisation as a major method of contraception. Lot of unmet need is seen in young recently married women, post-delivery, post-abortal states. Long-acting reversible contraception which includes intrauterine device, IUD, and implants has re-emerged strongly as a first choice of contraception for women of all ages including unmarried teenage pregnancies. They are highly efficient with failure rates equivalent or better than permanent methods, cost-effective, reversible, and have the potential to replace permanent sterilisation.

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This article examines the role and scope of LARC in present-day RCH programme and whether a paradigm shift is necessary to LARC from permanent methods.

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Introduction

Global Scenario

More than 200 million women in the developing world want to prevent pregnancy but are not using modern contraception leaving poor women facing a substantial risk of unintended pregnancy, unsafe abortion, maternal and infant mortality and morbidity [1], whereas in the developed world each year, more than 600,000 teens become pregnant, and 3 in 10 teens will become pregnant before they reach 20 years of age [2]. Teenage pregnancy has also been designated by the Centres for Disease Control and Prevention (CDC) as one of the six Winnable Battles because of the magnitude of the problem and the belief that it can be addressed by strategies that are known to be effective [3]. The Winnable Battle target is to reduce the teenage birth rate by 20 %, from 37.9 births per 1000 teens in 2009 to 30.3 per 1000 by 2015 [3].

Family Planning in India

India has, over the years, tried a number of different strategic approaches including a coercive target approach, a policy of reproductive health and rights, incentive-driven programmes, and a family planning camp approach, among others.

Though Indian family planning programme advocated cafeteria approach and provides a wide spectrum of temporary and permanent contraceptive methods for female and male clients (Table 1) in effect female sterilisation has been the mainstay of National Family Welfare program, accounting for 84 % of prevalence among married couples using modern methods [4]. Current statistics reveal that in the year 2000–2001, 4.74 million women underwent sterilisation [5]. The general trend of early marriage, successive pregnancies without spacing, and female sterilisation as the only method of contraception was never effectively addressed. The majority of the women never used any contraceptive method before accepting sterilisation, and more than 50 % undergo permanent sterilisation before they reach 26 years of age [6]. Married adolescents also accept permanent method after completing child birth [7].

Table 1 Methods provided by public sector in India

Spacing methods	Limiting methods
IUD 380A, Cu IUCD 375	Female sterilisation, laparoscopic and minilap
OC PILLS Condoms	Male sterilisation—non-scalpel vasectomy
NFHS 3	

On the other hand, modern spacing methods account for a small percentage (10 %) of contraceptive use [8]. In 2005–2006, 10 % of all pregnancies were mistimed (wanted later) and 11 % were not wanted, indicating that about 20 % of all pregnancies (about 5.6 million) were unwanted and/or unplanned [6]. A significant proportion of unwanted pregnancies are aborted, more than half under unsafe conditions [8]. In essence, the programme though partially achieved the primary aim of fertility decline, but has not succeeded in delaying first pregnancy, promoting healthy spacing or male contraception. The result has been continuing population momentum with gloomy statistics of maternal and child health. Efforts are currently underway to reconceptualise and reposition the programme so that it can be more responsive to the country's needs which differ among regions and States [8].

LARC a Re-emergence

In May 2012, the Population Council, the International Federation of Gynecology and Obstetrics (FIGO), and the Reproductive Health Supplies Coalition (RHSC) hosted a meeting at the Rockefeller Foundation's Bellagio Center to discuss opportunities to increase access to LARCs to accelerate progress towards meeting the Millennium Development Goal of universal access to reproductive health services [1].

LARC for Teens

The choice of contraception offered to this age group has been traditionally hormonal contraception and condoms. Recent, large-scale research has shown how effective long-acting contraception can be. Long-acting reversible contraceptive (LARC) methods have been shown to be acceptable to teens and young women, with higher continuation rates than shorter-acting methods [9]. In a study done in 10,000 adolescent girls, 75 % chose an implant or IUD when properly counselled. The continuation rates were 86 % in the LARC group versus 55 % who chose other temporary methods at the end of one year. Finally, women who used short-acting methods were 20 times more likely than women using an implant or IUD to have an unintended pregnancy at the end of one year which is most important in this age group [9]. It was found that pregnancy, birth, and abortion rates were low among teenage girls, and women enrolled in a project that removed financial and access barriers to contraception and informed them about the particular efficacy of LARC methods. The observed rates of pregnancy, birth, and abortion were substantially lower than national rates among all US teens [2].

The relative risk of pelvic inflammatory disease (PID) is increased only in the first 20 days after IUD insertion and then returns to baseline, while the absolute risk remains small. Bacterial contamination associated with the insertion process is the likely cause of infection, not the IUD itself. The risk of PID with IUD placement is 0–2 % when no cervical infection is present and 0–5 % when insertion occurs with an undetected infection [10].

Change in policies, reducing cost, integrating LARCs into health systems, ensuring availability and access, training and supervising qualified providers, and engaging support of professional associations were recommended to increase the scope of LARCS [1].

LARC: Most Effective

The three LARC methods available in the USA are the copper T380A IUD (Fig. 1), the levonorgestrel intrauterine system LNG-IUS (Fig. 2), and the etonogestrel single-rod contraceptive implant, Implanon (Fig. 3). The copper IUD 380 A is a T-shaped device with a polyethylene frame holding 380 mm² of exposed surface area of copper. It contains more copper and a part of copper is in the form of solid tubal sleeves on Arms (380A). It effectively prevents

Fig. 1 CU-T 380A



Fig. 2 LNGIUS



Fig. 3 IMPLANON

pregnancy for 10 years. When inserted within 5 days of unprotected sex, it can also be used for emergency contraception. Duration of contraception with the hormonal IUD is 5 years. Because the hormonal IUD may make menstrual cycles lighter, it is also approved by the US Food and Drug Administration (FDA) for the treatment for menorrhagia. The contraceptive implant Implanon has a pregnancy rate of 0.05 %, making it the most effective method of reversible contraception available [11]. The failure rate for IUDs is about equal to permanent sterilisation, and the failure rate for the implant is actually lower [2]. These are thus two of the most efficacious and cost-effective contraceptive methods available [2]. Implanon is a match stick sized rod measuring 4 cm length and 2 mm thick in diameter. It contains 68 mg of etonogestrel and comes preloaded into a needle as a disposable injection delivery system or applicator. It is inserted under the skin of the upper arm, allowing controlled release of an ovulation-suppressing hormone, etonogestrel at 30 µg/day for up to 3 years. There are few contraindications to LARCs, and almost all women are eligible for implants and IUDs. Once inserted, LARC do not require maintenance. All must be inserted in the physician's office, and return of fertility is rapid once the device is removed [11]. Jadelle is a levonorgestrel implant, long-acting reversible effective up to 5 years. They are not available by the brand name Jadelle in the USA, but other generic versions are available. Jadelle is not available in India. It is a set of two flexible cylindrical implants each containing 75 mg of the progestin levonorgestrel (Fig. 4).

“Typical-use” pregnancy rates for LARCs are lower, and continuation rates are higher and among the three least expensive contraceptive methods over a five-year period [12]. Use of long-acting reversible contraceptives (LARCs) increased nearly fivefold in the last decade among women aged 15–44. Long-acting reversible contraception has demonstrated greater efficacy in preventing unintended pregnancy among all women compared with other



Fig. 4 JADELLE

contraceptive methods, including the oral contraceptive pill and the transdermal patch [11]. Long-acting reversible contraceptives (LARC) were termed as first-line option for sexually active teenagers, according to new guidelines on teenage pregnancy prevention from the American Academy of Paediatrics (AAP). According to the AAP, despite their adverse effects, depot medroxyprogesterone acetate and the contraceptive patch are more effective and much safer than pregnancy [11].

LARC the First Choice

LARC has been declared as “first-line” choices of contraception for all women by Reproductive health experts and clinical Guidelines from the American Congress of Obstetricians and Gynaecologists (ACOG) [11]. The Centre for Disease control and Prevention’s recently released Medical Eligibility Criteria for Contraceptive Use guidelines concluded after extensive scientific review that IUDs are safe and effective for younger and nulliparous women [2].

LARC as an Alternative to Sterilisation

Women younger than 30 years at the time of sterilisation report especially high levels of post-sterilisation regret and are almost twice as likely to report regret as those older than 30 years [13]. Age less than 30 years was the strongest risk factor in an Indian study [14].

Wider use of LARC among younger parous women could reduce the incidence of sterilisation regret. However,

among parous women, the increase was greater among those younger than 30 years. The percentage of women who used LARC methods increased from 8 to 17 %, while the percentage relying on sterilisation declined from 58 to 51 %. Parous women older than 30 years continued to rely heavily on sterilisation. The two potential benefits with LARC are seen in younger women who shift from less effective methods and in women who want to avoid sterilisation regret.

LARC: Highly Effective Contraceptive Options for Abortion-Related Care

For women receiving abortion-related care who want an effective, discreet, long-acting, reversible contraceptive method, implants and IUDs are excellent options. Implants can be inserted immediately after vacuum aspiration and, according to the updated WHO guidance [15], on the day a woman takes the first pill of a medical abortion regimen. An IUD can be placed immediately after an uncomplicated vacuum aspiration and one week after a medical abortion, when it is reasonably certain the woman is no longer pregnant [15] (Table 2).

Post-Partum Period is a Window of Opportunity for contraception. There is a lot of scope in immediate post-partum period for provision of family planning facilities and reducing unmet need. Currently, there are 100 million IUCD users in the world and 80 % of them are in China. To capitalise on the dramatic increase in institutional deliveries after the introduction of Janani Suraksha Yojana in India and for addressing huge unmet need for contraception in the post-partum period, Government of India (GOI) introduced IUCD services in immediate post-partum period in select facilities in 19 states of India in 2010. Immediate post-partum period IUD insertion within 10 min of placental separation is safe and effective. More than 100,000 women in India choose post-partum IUCD to plan their families safely. PPIUCD strongly needs consideration as facility-based deliveries are increasing. Intra-caesarean insertions can be taken up in all primiparas and multiparas postponing permanent method of sterilisation. IUCD can replace permanent method as the efficacy is the same and reversible at the same time.

Table 2 Insertion guidelines for IUD and implant after medical abortion and vacuum aspiration

	Insertion after medical abortion	Vacuum aspiration
IUD	One week after medical abortion when it is certain that the woman is no longer	Immediately
Implant	The day of the first pill of a medical abortion regimen	Immediately

Safe abortion: technical and policy guidance for health systems; second edition authors: World Health Organization, Department of Reproductive Health and Research-2012

Conclusion

The role and scope of LARCS will grow due to the young age structure of population in developing nations with an extended role in teenage and adolescent age. Women prefer LARCS when they are provided with greater method choice, and it is estimated that nearly 57 million women will seek LARC by 2020 and it may become the first choice for women of all age groups and mark a paradigm shift from permanent and other temporary methods to LARC.

Compliance with Ethical Standards

Conflict of Interest None.

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