

Editorial

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Affordable ART for the Masses

Assisted Reproductive Technology (ART) has revolutionized the management of couples with the problem of infertility. It has been available over the last four decades and more than 5 million babies have been born with this treatment. However, the majority of infertile couples, especially in the developing countries like India, are unable to avail such facilities.

The disparity between the demand and supply of ART is largely due to its high cost. Affordability of ART is the biggest hurdle – the main barrier in accessing treatment. Since the success rate of ART is low, repetitive attempts may be necessary to achieve a favourable treatment outcome. That escalates the cost of treatment even further and thereby majority of patients drop out after one or two attempts. Although financial burden is the main cause for ART drop out, the other reasons for not continuing with the treatment are stress, agony, physical distress, uncertainty towards outcome and loss of time.

The main strategies for cost reduction of ART are follows: (1) careful patient selection, (2) simplifying pre-treatment investigations, (3) reduction in the cost of medicine, (4) streamlining clinical and laboratory steps of treatment, (5) better usage of laboratory facilities, (6) minimizing complications of treatment, and (7) arrangement of public healthcare funds.

The selection of ART over conventional therapy is mandatory in the following cases: (1) infertile women over the age of 38 years, (2) problem of more than 5 years duration, (3) associated tubal factor, (4) advanced endometriosis, and (5) severe male factor. Fertility experts must keep in mind that conventional therapies are safer, less stressful and more affordable, but it has a lower success rate and are of no benefit in certain situations. Moreover, when early results are desirable, ART is much more cost effective than conventional therapies. Primary ART without IUI is certainly more beneficial in patients with mild male factor and unexplained infertility.

The efficacy of treatment in those women who were supposed to have IUI but converted to ART due to hyper response to ovulation induction, has suggested that mild ovarian stimulation may be sufficient in the majority of patients. Such treatment regimen with clomiphene along with small dosage of gonadotrophins plays an important role in optimization of cost effectiveness for ART. In mild ovarian stimulation protocols the oocyte yield may be lower but of better quality. There is a minimum interference to the natural selection process of good quality oocytes and lesser exposure to potentially negative effects of ovarian stimulation agents, thereby resulting in a higher proportion of euploid embryos. In addition, due to relatively lower levels of oestradiol, the problem of embryo-endometrial asynchrony may be avoided. Although, development of fewer embryos and lower pregnancy rate has been reported, the cumulative

pregnancy and live birth rates remain similar to standard ART. Mild ovarian stimulation can also reduce the incidence of OHSS which often discourages patients to come back for further treatment attempts. In modern ART protocol, the usage of antagonist, GnRH agonist trigger and freeze all embryo policy can defiantly eliminate OHSS for sure.

The efficacy and benefits of elective single embryo transfer (eSET) during ART are now well established. The cumulative success rates are comparable to multiple embryo transfers with a remarkably lower incidence of multiple pregnancy and its associated complications. Multiple pregnancies have to be avoided at all cost as it is associated with a higher incidence of preterm birth, low birth weight, handicapped child and cerebral palsy. Such complications are higher even in ART singleton pregnancies as in many cases, they start off as a twin pregnancy and become singleton with miscarriage of one embryo in early pregnancy. Hence, there is a linear relationship between the number of embryo transferred and first trimester blood loss, which is commonly associated with poor pregnancy and neonatal outcome.

It is important to provide adequate information and counselling regarding a realistic success rate of ART in each individual patient. ART success depends on following parameters: (1) age and BMI of female partner, (2) duration of infertility, (3) any previous pregnancies, (4) baseline FSH, AMH and AFC values, (5) cause of infertility, (6) number of embryos transferred, (7) quality and day of embryo transfer, (8) exclusion of anuploidy embryos, (9) endometrial thickness and appearance, and (10) subendometrial blood flow. Thus each couple should be counselled about their individual ART success rate and the need for repeating ART treatment up to six attempts.

In order to increase the acceptance of ART the clinicians must work hard to remove the prevailing myths and misconceptions among general population. Even today the general belief is that ART is only for the rich and famous. Most infertile couples try to avoid ART as the last resort without realising that an early treatment would improve the success rate tremendously. People wrongly believe that the treatment is painful and requires prolonged bed rest which has to be continued throughout pregnancy. To add to this ever-increasing list of negatives is the opinion that

ART babies are born with birth defects and would need special care throughout their lives.

It is therefore desirable to remove the misconceptions about untoward side effects of ART. The practice of mild ovarian stimulation and eSET can avoid the majority of side effects of ART that are related to multiple pregnancies and OHSS. Congenital anomalies in babies following ART are not caused by the treatment itself but largely due to associated parental factors. The majority of these patients are elderly, obese, hypertensive, diabetic along with their poor egg and sperm qualities. This is supported by the fact that there is no increase in birth defects in low risk patients with a singleton pregnancy following ART.

With the availability of universal public funding for ART, there is an increase in acceptability which confirms that it is the financial burden and not misconceptions or poor expectations that deter couples to avail treatment. With such financial help even clinicians change their approach to ART using milder ovarian stimulations and eSET. This automatically results in lower OHSS and fewer multiple pregnancies. The clinical pregnancy rate is lower but the cumulative success rate is much better with the option of repeating treatment cycles without any cost burden. It is interesting to note that the medical cost per cycle is lower resulting in lesser cost per live birth. The savings of fund with the changed approach can thereby pay for extra 55% ART cycles. However, the total cost of repeated ART cycles for many more patients availing treatment in the community would definitely be much higher.

Therefore, ART can only be offered to masses by changing the mindset of personals involved (both doctors and patients) along with an altered protocol for treatment. Individualised minimum ovarian stimulation is the most important step towards success and safety of ART. Proper case selection and counselling for a realistic expectation are essential to make ART acceptable. Outcome of treatment should be considered only on the basis of cumulative outcome of up to six ART attempts. For better results, ART should not be delayed as the last option of treatment for infertile couples. Finally, many low profit private and public funded ART centres are needed to reduce the cost burden of ART for people of low socioeconomic status which forms the majority of population in a developing country like India.