

IVF in developing countries; an ethical dilemma, illustrations from Egypt

Abstract

Over the past few years, there has been a lot of focus on new developing trends in the world of IVF. We have come a very long way from the first test tube baby being born in 1978. With the development of ICSI there has been radical changes in the field of Assisted Reproduction. Many trends have come and gone. Many new developments have been incorporated into mainstream lab work. Yet there is not much focus on how these trends are incorporated in developing countries. Is there a place for them in the first place? We take a look on how emerging new trends have a place in the developing world.

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Introduction

We have come a long way in IVF. With new technologies and the standardization of many everyday routine IVF procedures, there has been a dramatic increase in live birth rate over the years. In the last fifteen years or so there has been an influx of new trends that all claim to increase pregnancy rates. Namely genetic testing of embryos for aneuploidy before transfer, and many other Pre-Genetic Screening (PGS).

Changes over the years

In the past decade there has been many changes in routine IVF procedures. Many laboratories use non-sequential media and gone are the days where we would have to regularly change plates.

- a. Most laboratories transfer exclusively on Day 5 or Day 6.
- b. Day 3 transfers have almost become a thing of the past.
- c. A great number of labs also support low oxygen tension of 5-6% in tri-gas incubators to improve embryo quality.¹ Also within recent years there has been a trend of 'freeze-all' cycles. All embryos are frozen on Day 5 and transferred in another cycle. It is believed the endometrial receptivity in a non-stimulated cycle is better and thus helps improve pregnancy rates.^{2,3}

There has now also been a wide world acceptance of Single Embryo Transfers (sET). Studies have shown that pregnancy rates between double embryo transfers and single embryo transfer are similar and it is perhaps better to transfer a single embryo and freeze excess embryos for a later cycle.^{4,5} The latest trend is PGS where genetic screening has come in leaps and bounds in the recent years. What was once thought to be science fiction or futuristic technology is now accessible to all. However in developing countries we still seem to be stuck in the late nineties as regards to IVF practices and trends.

Obstacles hindering progress in developing countries

It is not surprising that the number one factor dampening progression in developing countries is funds, or more specifically

the lack of funds.⁶ With all materials and disposables imported from Europe, America and sometimes South East Asia, the cost of a cycle to the average citizen is way beyond their means. Most of the governments of developing countries do not offer any assistance to those seeking ART. They are usually over populated and have more pressing matters of general poverty, unemployment and national debt to focus on bringing more children in their already overcrowded country.

Socially speaking in developing countries the social stigma of being childless is often extremely debilitating. These couples are sometimes deliberately left out of social events such as birthday parties and christenings and in rural areas neighbours even refrain from hanging their children's clothes to dry outside, lest the childless couple sees them.

- a. The process itself is mentally harrowing⁷ (Inhorn)
- b. This combined with the cost of IVF to these couples put many embryologists and obstetricians in an ethical dilemma. Is it fair to transfer one embryo when you know the couple cannot afford to freeze their remaining embryos?
- c. Do we leave all embryos till Day 5 and take a chance of having no embryo transfer done. Do we still take the chance knowing that a no transfer might lead to divorce?
- d. Is it fair or wise to recommend PGS to couples when studies have shown that the results in live birth rates is not really worth the extra cost to an already impoverished couple?
- e. These are all situations we regularly find ourselves in. What do we do knowing the knowledge we know about new emerging trends.

One of the main obstacles facing IVF centres wishing to implement these 'new' practices is patient consent. Prior to this article I interviewed 150 couples preparing to undergo an ICSI procedure over the span of seven months. Couples were asked if they would accept a freeze all cycle and freezing any excess embryos. Out of 150 couples only 3 accepted a freeze all cycle. Citing that the female partner had already had Ovarian Hyperstimulation Syndrome (OHSS)

in a previous cycle. However only 30% agreed to a sET if they had embryos frozen and/or if their obstetrician believed it would be in their best interests.

However a large number 40% didn't believe in embryo freezing in the first place, believing a fresh cycle would yield better results than a frozen cycle. They preferred multiple embryos transferred in a fresh cycle over a sET and freezing to any remaining embryos.

Surprisingly this wasn't correlated to level of education. Mostly personal beliefs and values. A few couples were against embryo freezing and a frozen embryo transfer because the husband was working abroad most of the year. A resulting pregnancy from a frozen cycle would cause malicious gossip in the rural town where they lived where the concept of IVF is still shrouded in mystery and ignorance. However the majority of patients, 80% requested multiple embryo transfers. The idea of an instant family after years of infertility greatly appealed to them. They also didn't have the money to freeze embryos or undergo a subsequent cycle to expand their family in the future.

However when asked if money wasn't an issue the numbers shifted greatly. Over 80% said they wouldn't mind a sET if it yielded similar pregnancy rates as a double embryo transfer, providing that the extra embryos were frozen.

The importance of set in the middle east

sET is not widely practiced in Egypt. Most patients request multiple embryos transferred believing it will improve pregnancy rates and the idea of an 'instant family' is both appealing and welcome. However multiple embryo transfers cause many problems the patients are not well equipped with. Given the younger age of women seeking treatment implantation rates are quite high. In some centres where more than three embryos are transferred there is the problem of high multiple pregnancies and then the dilemma of solving it. Fetal reductions are commonplace but it is really an issue that can be avoided at the start.

For the couples that don't believe in fetal reductions or have triplet pregnancies pre-term labour is a very imminent risk factor. Most state hospitals are ill equipped to deal with newborns born under 30 weeks and in many cases pre-term labour with high order multiples can result in life-long disabilities for the babies or even death. It is very stressful for couples to pay the large amounts needed for an IVF cycle then the expenses of NICU only to have no baby to bring home at the end.

It is a problem that can be easily avoided by sET and proper patient education and counseling. The patient must be told that pregnancy rates are similar for sET and that of double embryo transfers.^{7,8} Perhaps if more IVF centres incorporated the cost of freezing within the cycle, more patients would be willing to transfer fewer embryos.

The problem with day 5 only transfers

There have been many studies claiming that Day 5 Blastocyst Transfers are better.⁹ Better embryo morphological selection and better endometrial receptivity. Yet how can we practice Day 5 only transfers when in many cases the marriage is at stake? In countries where gamete donation is strictly prohibited, failure to get pregnant can lead to divorce or the man re-marrying in order to fulfill the personal and social need to have children.

Many patients would like to have an embryo transfer at any day even if it was really bad embryo quality. It is more of a social and

psychological need. A transfer is better than no transfer at all. A miscarriage is better than no pregnancy at all. At least they can say they could conceive but faith intervened. There have also been some studies with results of similar pregnancy rates between Day 3 and Day 5 transfers.¹⁰

Role of pre genetic screening in the middle east

Lately there has been the trend of Pre-Genetic Screening (PGS) before embryo transfer. It is aimed for patients with previous implantation failure and Advanced Maternal Age (AMA). This is one area, which we are really behind our western counterparts. Mainly because the average age of females seeking treatment are late twenties to early thirties. Most of the problems are male related, which explains the widespread use of Intra-cytoplasmically Morphologically Selected Spermatozoa (IMSI).¹¹

Sadly the most common and readily available PGS available is Fluorescent In-Situ Hybridization (FISH). This sadly is used for social sexing. This leaves many couples that have serious hereditary diseases in the region like Beta Thalassemia and G6PD deficiency at a loss of what to do. Recently however a few clinics in the country have started offering (Next Generation Sequencing) NGS. Yet the way it is offered and advertised doesn't really relay its full potential to members of the public who need it the most.

It is depicted as new technology used to help infertile couples get pregnant rather than a screening process for couples who have hereditary diseases. This is disturbing because this service is only provided by private clinics and is very costly to the average citizen. Secondly there have been many studies reporting no considerable increase of pregnancy rate with PGS.¹²

Commercialization of IVF

We now are running into the risk of providing a commercial service more than a needed health service. The problem with countries that have most of their health sectors are private, is that the patient interest is not always top priority. New emerging trends such as time-lapse incubators and PGS can be a financial pitfall for desperate couples wanting a child. False promises and hopes are built on these technologies despite lack of efficient data to prove they in fact increase live birth rate.

As doctors and embryologists we must always keep our conscience in check when recommending new procedures to patients. Will it really benefit them? Is it worth them spending more than they can afford and face debt? Will it really save their marriage or greatly improve outcomes?

This can be difficult because each centre or doctor has his or her own individual school of thought. What is right for one doctor may be unethical for another? What is right for one patient may be wrong for another. We must examine each case individually and custom make the choices based on what we see before us. Without any governing body or national guidelines, this can be quite taxing as we in the Middle East are faced with dilemmas as what to do in the best interest of the patient.

Possible solutions

With the rapid development of new technologies and the ever-

evolving process of IVF, it is high time possible solutions can be met. Both doctors and embryologists must work together hand in hand to find suitable protocols for patients. It would immensely help if there were an official governing body to set specific laws on issues like the number of embryos allowed to be transferred or who is eligible to avail of PGS services available to avoid commercialization and abuse of the system. We should be working on clear guidelines on how to cost effectively treat patients and minimize risk and prevent complications.

The most important thing to try and establish is proper patient education and counseling. Dispelling myths about fresh and frozen cycles and helping patients make informed decisions when it comes to embryo transfers and PGS. It is true that we have a different set of problems and ideologies than most other countries yet we have the knowledge to help customize and utilize this information to meet the specific requirements of our patients.

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Conflict of interest

Author declares that there is no conflict of interest.

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