

Multiple pregnancy and Assisted Reproductive Technology

Fact Sheet

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A World Health Organisation meeting convened as long ago as September 2001 to review the medical, social and ethical aspects of assisted reproduction, recognised multiple pregnancies as a 'major' complication of Assisted Reproductive Technology (ART) treatment. The challenge for ART clinics is to reduce the risk of twins and triplets while maintaining the success rates. Various studies have shown that with advances in embryology, reducing the number of embryos transferred from three to two and then to one has hardly affected the pregnancy rate (but virtually eliminated the risk of twins and triplets) and for that reason, especially in Australia, most clinics are now pursuing single embryo transfer (SET) for most patients. In fact the Reproductive Technology Accreditation Committee (RTAC) Code of Practice states that ART clinics "must minimise the incidence of multiple pregnancy".

Medical facts

The fact that the probability of multiple pregnancy was increased in ART appealed to many people who had tried unsuccessfully for many years to have children. However, with increasing success rates following single embryo transfer and changes to RTAC's Code of Practice, multiple pregnancies are decreasing. The Code of Practice can be viewed under 'RTAC'; at www.fertilitysociety.com.au where you can read the current policy regarding the number of embryos to be transferred in ART cycles.

The following information outlines the risks of multiple pregnancy, which will help explain the reason behind the move to SET in ART in Australia. It was

written at a time when transferring two, or even three, embryos per cycle was common practice.

What is a multiple pregnancy?

A multiple pregnancy is one where two or more foetuses develop simultaneously in the uterus. This can result naturally, when the woman releases more than one egg that is fertilised and implants in her uterus. If there are two eggs, this can result in a multiple pregnancy with non-identical twins, also known as dizygotic or fraternal twins. Sometimes a single fertilised egg can divide and develop into identical, or monozygotic twins. It is also important to be aware that rarely when such embryos divide, two transferred embryos could result in four pregnancies, further increasing the risks to mother and babies.

An increase in monozygotic twinning has been noted with blastocyst transfer and there have been some suggestions in the medical press that 'assisted hatching', either by laser or acid, may also result in an increase in the incidence of monozygotic twins. Further studies are planned but this should be borne in mind by those contemplating utilising these procedures to 'possibly' increase their chances of successful implantation.

A multiple pregnancy is usually discovered at ultrasound, usually carried out six and eight weeks after your last menstrual period. This is usual practice after IVF and most other forms of assisted conception treatment.

A multiple birth is when more than one baby is born from a multiple pregnancy. A higher order birth is one where three babies or more are born.

Is multiple pregnancy increased with ART treatment?

The simple answer is “Yes”!

Fertility drugs, by injection or orally, are often used to stimulate follicle growth and these are often used in conjunction with Intrauterine Insemination (IUI). Conception is achieved naturally but with the increased number of follicles and hence eggs, together with the lack of control over fertilization and the number of fertilized embryos reaching the uterine cavity, there is a higher risk of multiple pregnancy. Indeed in most countries the risk of multiple pregnancies after these less controlled and less regulated treatments, used on a much larger scale, can in fact have a much more profound statistical impact. The use of these methods is often wholly medically and financially justified but they all require careful monitoring to try to avoid the very real problems of excessive response and multiple pregnancy.

One in eighty natural pregnancies result in twins but the rate from IVF is about one in five, even in countries where guidelines limit the number of embryos transferred to three and just two are routinely transferred.¹ The chance of having multiple births from IVF treatment is directly related to the number of embryos transferred at each treatment. Improved results have led to the more enlightened clinicians, who are concerned by such issues, to limit the number of embryos transferred per treatment cycle and the Reproductive Technology Accreditation Committee guidelines used in Australia strongly endorse reduced numbers at transfer.

Multi fetal pregnancy (or selective) reduction

Where there is a multiple pregnancy, usually of triplets or more, your doctor may suggest that you consider the reduction of one or more embryos in the early weeks of the pregnancy, to give the remaining

embryo(s) a better chance to develop into healthy babies. This can be a very difficult option, both emotionally and ethically and the couple will need to discuss this carefully with their doctor and counsellor who will help them to come to a decision that is right for them and provide advice and support for as long as it is needed.²

What are problems with a multiple pregnancy?

- Multiple pregnancies increase the risk of pre-eclampsia, gestational diabetes, excessive weight gain, anaemia, back pain, pelvic laxity after birth and perhaps most importantly premature birth with all the problems that follow from that.

- The risk of losing a child from a twin pregnancy is five times that of a singleton.

- The birth weight of twins and triplets is generally lower than that of singletons who have an average weight of 3.5 kg (about 7 lbs). The average birth weight of a twin infant is 2.5 kg (about 5 lbs) and of a triplet 1.8 kg (about 3 lbs).³ Discordant growth and complications such as twin to twin transfusion can also give rise to significant short and long-term complications for the infants.

- The risk of long-term damage such as cerebral palsy is increased. A study of births in Western Australia found that triplet pregnancies produced a child with cerebral palsy 16.6 times more often than a singleton pregnancy. The rate for cerebral palsy in twins was 7.4 per 1,000 births and for triplets 26.7 compared with 1.6 for singletons.⁴

- Higher order multiple pregnancies carry even greater risks.

- Even if the children are born healthy, there can be many emotional and learning problems for them and very significant financial problems for the parents.

It is a lifetime commitment and marriage failure is higher in these families than in those with singleton children.

Because of all these factors, you should discuss these problems with your doctor and counsellor before starting treatment. The sense of urgency and the push for aggressive therapy so often demonstrated by infertile couples should be tempered by careful consideration of the potential implications. Our collective aim is a healthy child and multiple pregnancy can jeopardize the outcome. If you do have a multiple pregnancy or have children as a result of a multiple pregnancy, there is help and advice available within your community. Ask your local infertility support group or the Multiple Births Foundation in your country.

Emotional Facts

What exactly does it mean to have children from a multiple birth?

- Lots of cuddles and kisses
- An ‘instant’ family
- Lots more housework
- Maybe a new car with more seats
- Maybe a new house with more rooms
- Lack of time to complete tasks
- Loss of spontaneity – it takes a long time to get two or more babies ready to go out
- Full-time work – meaning 24 hours shifts at home as well as any away-from-home work
- Extra expenses – you can’t pass down clothes when the children are all the same size

••• Multiple pieces of equipment like cots and car seats have to be bought at the same time

••• Perhaps the children were born prematurely

••• One or more of the children may have health problems

••• One or more of the children may not survive

••• Feelings of guilt, frustration or depression

The idea of multiple pregnancy is very appealing to some people, especially after years of infertility. Many couples are lucky enough to have healthy babies following a multiple birth, and it is easy to assume that this is always the case – most people would not think beyond the first few points in the list above. But even under the best of circumstances the arrival of several babies changes their parents' lives. Before deliberately aiming for a multiple pregnancy, couples should consider the risks to the health of the mother and babies and they should think about all of the changes that will have to happen to their lifestyle.

••• How will all of the babies be fed – together or separately, one after the other?

••• How will bath time be managed?

••• How will outings be arranged?

••• How will parents manage with perhaps several years of sleep deprivation, knowing that if even one baby is asleep another might wake up and need attention?

••• Where will all of the beds fit?

••• Is there likely to be enough money available to meet the needs of the new family over the coming years?

If the babies are born prematurely, one or more might need to have special therapy sessions, meaning that it isn't possible to spend the same amount of time with each child. This can raise parents' feelings of guilt and even frustration.

So it is important for couples to discuss all of the points in this list before deciding whether a multiple pregnancy is **really** what they are aiming for in their infertility treatment.

Glossary

Anaemia

Anaemia means that either the level of red blood cells or the level of haemoglobin is lower than normal. This means the red blood cells have to work harder to get oxygen around the body. During heavy exercise, the cells may not be able to do their job adequately and the person may become exhausted. Anaemia occurs in about 50 per cent of pregnant women.

Preeclampsia

Pre-eclampsia is a serious disorder of pregnancy characterised by high maternal blood pressure, protein in the urine and severe fluid retention. It is the most common complication of pregnancy, affecting around five to ten per cent of all pregnancies. One to two per cent of cases are severe enough to threaten the lives of both the mother and her unborn child.

Twin to Twin transfusion

Twin-to-twin Transfusion Syndrome occurs when there is communication between the placental vasculature and there is blood flow between the babies whereby one receives the major share (at the expense of the other). This is more likely to happen with identical than fraternal twins because direct connections between the twins' placental arteries and veins are much more common.

Cerebral Palsy

Cerebral palsy describes a range of disabilities associated with movement and posture. 'Cerebral' refers to the brain and 'palsy' means weakness or lack of muscle control. Although cerebral palsy is a permanent condition, a child with this condition can achieve greater control over movement, as he or she learns and practices motor skills.

Reference List

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Bryan EM, Edward Arnold, 1992

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