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Headline: Test-tube insurance

Test-tube insurance

The CGH method offers intensive screening of embryos for chromosomal defects. By **Soonya Vanichkorn**

Thirty years ago, medical science mesmerised the world with the first test-tube baby, born through a process called in vitro fertilisation (IVF). At that stage, however, technology had not advanced far enough to prevent birth defects in IVF babies.

Today, a pioneering chromosome screening technique invented by British and American scientists may offer the solution. Known as comparative genomic hybridisation (CGH), the new method enables detection of chromosomal abnormalities in embryos before implantation in IVF.

This means only the healthiest embryo with no defects will be implanted in the patient, thus slashing the odds of miscarriage or giving birth to a child with chromosome-related disorders such as Down syndrome, colour blindness and haemophilia.

The technology will be a boon to Thai women, as late marriages and unhealthy lifestyles have led to concerns about miscarriage and giving birth to unhealthy babies, says Sarayuth Assamakorn, the managing director of Superior A.R.T., an assisted reproduction centre.

"As women age, their embryos begin to exhibit chromosomal abnormalities, leading to miscarriages as well as the risk of giving birth to a child with birth defects," said Mr Sarayuth.

Embryos are made up of cells, each of which should normally contain 23 pairs or 46 chromosomes. Abnormalities occur when there are errors in the number or structure of chromosomes.

35 Average age Thai women get married. It was 32 eight years ago. This means the chances of conceiving per month is decreasing.

36 Age when a woman's chances of conceiving per month decrease by half. It is down to 1% by the age of 45.

30-40% Chances of chromosomal abnormalities in women older than 40. The rates are 15% for those younger than 35 and 20-25% for those between 35 and 39.

POSTgraphics

A laboratory worker fills a test tube at the Sydney IVF Clinic in Sydney. Photos by BLOOMBERG

Chromosome-related illnesses can be passed through the generations unless abnormal chromosomes are detected.

Superior A.R.T. is the first centre in Thailand to offer the CGH treatment. A few cells are removed from the growing embryo five days after fertilisation, and the chromosomes are scanned. Results are available in 16 hours, after which the best embryo is implanted in the patient.

CGH can screen all 23 pairs of chromosomes and is therefore more reliable than an older method known as FISH that screens just five pairs, leaving a considerable portion untested for defects, said James Marshall, an eminent scientist visiting Superior A.R.T.

He said CGH is useful for couples with a history of chromosome-related diseases and for women who have miscarriages and difficulty getting pregnant.

Somboon Kunathikom, president of

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A company handout of a microscopic image of sperm being injected into an egg at the Sydney IVF Clinic in Sydney.

the Royal Thai College of Obstetricians and Gynaecologists, dubbed CGH a step forward in medical science. Even so, limitations exist.

"There are chances, albeit extremely small, that certain chromosomes in the implanted embryo will undergo some kind of mutation later on," he said.

Also, there is not enough evidence to confirm CGH leads to 100% pregnancy rates in IVF, as cases conducted so far are too few. The pregnancy rate for IVF in Thailand is just 30%.

"A healthy embryo is just one of several factors determining a successful pregnancy," said Dr Somboon.

In the last three months, Superior A.R.T. has seen 18 CGH patients, mostly from abroad. Two have had embryos implanted and become pregnant. The company targets 50 patients next year.