

# Overview of implantation failure

Recurrent implantation failure (RIF) refers to cases in which women have had three failed in vitro fertilization (IVF) attempts with good quality embryos. The definition should also take advanced maternal age and embryo stage into consideration. The failure of embryo implantation can be a consequence of uterine, male, or embryo factors.

These cases should be investigated to determine the most likely etiologies of the condition, as this is a complex problem with several variables. There are multiple risk factors for recurrent implantation failure including advanced maternal age, smoking status of both parents, elevated body mass index, and stress levels. Immunological factors such as cytokine levels and presence of specific autoantibodies should be examined, as well as any infectious organisms in the uterus leading to chronic endometritis. Uterine pathologies such as polyps and myomas as well as congenital anatomical anomalies should be ruled out. Sperm analysis, **pre-implantation genetic screening and endometrial receptivity** should be considered and evaluated.

## Implantation failure

IVF and ICSI can be very successful treatment methods. However, some cycles don't finish with successful implantation, even after a number of transfers with apparently good embryos. Also, sometimes a cycle achieves a conception, but the pregnancy doesn't develop to term.

There are various biological reasons why these two circumstances could be related, which lead us to look at potential therapies which could help.

### Investigations and treatments

There is support for several treatment options for women with "recurrent implantation failure" (defined as 2 or more failed embryo transfers in IVF/ICSI treatment cycles). However, the available evidence is limited for many of the possibilities, due to a lack of suitably large clinical studies. Listed below are options we can talk about in a follow-up appointment in the upsetting event of a failed implantation or miscarriage. In devising treatment programs, there are investigations we can carry out before treatment commences, which help us to tailor your treatment closely to your needs. There are also options carried out in the process of treatment that could help implantation. If you'd like to talk about your options after an implantation failure or miscarriage, we're here to help.

### Maternal blood tests

- **Clotting (thrombophilia) screen** – Small clots in the blood have been identified as a possible cause for a pregnancies failing to progress. In some cases this can be treated with aspirin, or heparin injections to thin the blood.  
COSTS; ¥ 92,000+TAX
- **Immune screen** – Increased levels of uterine natural killer cells and autoantibodies (antibodies attacking specific organs) have also been suggested as a cause for repeated failure of cycles. The use of immunosuppressive drug and other drugs such as Chinese herbs to suppress the immune system are suggested to be help a pregnancy develop.  
COSTS; ¥ 36,000+TAX

Some of the drugs used in these treatments have side effects for both a mother and her developing baby, and it's important to understand these risks before deciding with your doctor whether testing or treatment is recommended.

## Endometrial tests

- **Hysteroscopy** – We may suggest a hysteroscopy (passing a flexible telescope into the womb) if we suspect scar tissue formation or the presence of a fibroid or polyp inside the womb which needs to be removed.  
COSTS; ¥ 11,000+TAX
- **Endometrial sampling for Chronic Endometritis (CE)** – CE is a disease of continuous and subtle inflammation in the womb. Microorganisms are thought to be a main cause of CE, since antibiotic treatment has been reported to be an effective therapy for CE.  
COSTS; ¥ 15,000+TAX
- **Endometrial Receptivity Array** – A small amount of tissue from the womb lining can be sampled and analyzed for the presence of over 200 genes known to be associated with implantation. Studies have shown that for some women this “window of implantation” is shifted either earlier or later in the menstrual cycle, or it is very narrow. Furthermore, by moving the planned embryo transfer to the appropriate time, chances of successful implantation can be improved.  
COSTS; ¥ 150,000+TAX

## Paternal factors

- **Sperm DNA fragmentation**– Assessing the degree of damage to sperm DNA help identify those couples that would benefit from ICSI treatment.  
COSTS; ¥ 10,000+TAX
- **Oxidative stress** –Oxidative stress is associated with pathogenesis of sperm DNA damage and dysfunction. Total antioxidant capacity (TAC) is the measure of the amount of antioxidants, which can protect cells against oxidative stress, in seminal plasma.  
COSTS; ¥ 10,000+TAX

## Embryo factors

- **Genetic screening (Preimplantation genetic testing for aneuploidy=PGT-A)**– We can use genetic screening to learn more about embryos before they are implanted, which helps us select the best embryos most likely to implant. COSTS; ¥ 80,000+TAX/each egg