

Enhancing the *In Vitro* Fertilization (IVF) Success Rates by Intralipid Infusion Therapy

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DESCRIPTION

Intralipid infusion therapy is a short-term treatment for specific patient groups that is administered before and after *In Vitro* Fertilization (IVF) treatments. Intralipid has been used in conjunction with IVF treatment to assist women who have experienced recurrent miscarriage or repeated implantation failure following embryo transfer. Many IVF specialists now use it as a treatment to increase IVF success rates while decreasing the risk of miscarriage. Intravenous intralipid administration increased the rate of live births after IVF treatment in women who had previously failed IVF. *In Vitro* Fertilization (IVF) is the most popular fertility treatment now-a-days. This is primarily due to its effectiveness and relative simplicity as a medical procedure that help people with fertility problems have a baby without significantly altering their daily routine.

Natural Killer (NK) cells are white blood cells that aid in the control of viral infections. The presence of a large number of natural killer cells can alert the body to treat an implanting embryo as an invading cell or foreign object and attack it. This indicates that the person might have an overactive immune system that needs to be suppressed. There is evidence that some immune system cells known as Natural Killer (NK) cells could attack the embryos, recognising them as foreign and causing them to fail implantation. Intralipids reduce the number of Natural Killer (NK) cells and their cytotoxicity. Intralipids may be used successfully as a therapeutic option to modulate abnormal NK activity in women with infertility. Intralipid infusion therapy, which uses a combination of soya oil, egg yolk, and glycerine, is thought to protect cell membranes from NK cells. The latter is based on the possibility that a woman's uterus is defensive to receiving embryos transferred during the final stage of IVF treatment.

It was administered by adjusting the drip rate so that 500 ml of a 20% solution is infused over the course of 2 to 3 hours. Under supervision, the infusion should be started at half the normal rate for the first 30 minutes. The intralipids does not take effect immediately. As a result, the first infusion should be started prior to the planned reproductive medicine treatment, and the

second infusion should take place during the follicular puncture. Several studies have shown that 1 week after the second infusion, natural killer cells were suppressed in 99% of patients. If a positive pregnancy test is obtained, the treatment can be continued every 4 weeks until the 12th week of pregnancy, depending on the circumstances.

Contra-indications and cautions of intralipid infusion

Intralipids are only contraindicated in conditions associated with severely disordered fat metabolism (severe liver damage, acute myocardial infarction and shock). Rarely, hypersensitivity has been observed in patients allergic to soybean protein, egg yolk, and egg whites, as well as in patients with impaired fat metabolism (renal insufficiency, uncontrolled diabetes, certain metabolic disorders, and severe infection) and sepsis.

Adverse reactions to intralipid infusion

Transient fever, chills, nausea, vomiting, headache, back or chest pain with dyspnea, and cyanosis are among the rare adverse reactions reported during and or following intralipid infusion. Liver function must be closely monitored in cases of confirmed or suspected liver insufficiency. If elevated levels of transaminases, alkaline phosphatases, or bilirubin are detected, intralipid infusion should be discontinued or postponed until normalisation is achieved. Very rare cases of hypersensitivity have been observed in patients allergic to soybean protein, egg yolk and egg whites. Conditions such as renal insufficiency, uncompensated diabetes, certain types of liver insufficiency, metabolic disorders, and sepsis can all disrupt fat metabolism.

CONCLUSION

Intralipid treatment has the advantage of being relatively inexpensive and free of the more serious side effects and risks associated with Intra Venous Immune Globulin (IVIG) because it is not a blood product. It was concluded from human clinical trial data of recurrent miscarriage sufferers that intralipids even when infused even in small doses, could be an effective antiabortion

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treatment. Intralipid was extremely effective in preventing abortion in mice.. It is usually used in conjunction with *In Vitro* Fertilization (IVF) or Intrauterine insemination (IUI) rather than

as a stand-alone procedure. It may improve success rates for women who have had implantation failures or early miscarriages.