

Supplementary Table S1. Full-Text Excluded Studies and Reasons for Exclusion

*Reason codes for exclusion:

1. Wrong population
2. Wrong intervention
3. Wrong comparison
4. Wrong outcomes
5. Wrong study design
6. Duplicates
7. Abstract without safety outcome
8. Other (retracted publication)

#	Author (Year)	Title	Reason for exclusion*
1	Roussev 2008	Duration of intralipid's suppressive effect on NK cell's functional activity	4
2	Acacio 2008	Pregnancy outcome after intralipid infusion among women experiencing recurrent pregnancy loss	5
3	Cohen 2009	Intravenous intralipid therapy is not beneficial in having a live delivery in women aged 40-42 with previous history of miscarriage undergoing in vitro fertilization-embryo transfer	6
4	Ndukwe 2011	Recurrent embryo implantation failure after in vitro fertilisation: Improved outcome following intralipid infusion in women with elevated T Helper 1 response	7
5	Toliopoulos 2012	Case of a 39 year old woman experiencing natural successful pregnancy after 2 IUI unsuccessful attempts in Northern Greece after suppression of abnormal NK functional activity	4
6	Roussev 2012	Combination therapy of IVIg, Intarlipid, Fraxiparin, and Aspirin improves pregnancy successful rate in RPL patients with abnormal immune factors	4
7	Coulam 2012	Does immunotherapy for treatment of reproductive failure enhance live births?	5
8	Nct 2012	Intralipid for Repeated Implantation Failure	5
9	Nct 2012	Intralipid Therapy for Recurrent Implantation Failure and Recurrent Miscarriages: is it a Hope or Myth? A Randomized Clinical Trial	5
10	Nct 2013	Intralipid for Recurrent Miscarriage	5
11	Nct 2013	Intralipid Therapy for Women 35-40 Years With Positive Natural Killer Cells Undergoing Intracytoplasmic Sperm Injection (ICSI)	5
12	Scher 2013	Intralipid treatment in recurrent miscarriage and repeated failed IVF: A clinical study	7
13	Chi 2013	Introlipid versus IVIG in treating unexplained recurrent spontaneous abortion--a randomised prospective multi-center study	5
14	Petitbarat 2014	Corticoids and intralipids seem to regulate endometrial over immune activation in women with embryo implantation failure	4
15	Fukui 2014	Does immunoglobulin or intralipid work as an immune-modulator for recurrent pregnancy loss women with abnormal NK cells?	4
16	Nct 2015	Assessment of Intralipid Efficacy in Women With Unexplained Recurrent Implantation Failure	5
17	El-Khayata 2015	Intralipid for repeated implantation failure (RIF): A randomized controlled trial	7
18	Petitbarat 2015	Perfusion of intralipids may be an alternative treatment to control an endometrial over-immune activation resistant to corticoids in patients with previous repeated embryo implantation failures	4
19	Hirshfeld-Cytron 2016	Does intralipid infusion improve outcomes in RPL (recurrent pregnancy loss)/RIF (recurrent implantation failure) patients undergoing IVF? Is it costeffective?	4
20	Nct 2016	Effect of Intralipid Infusion in Patients With Recurrent Implantation Failure	5
21	Shirlow 2016	The effect of intralipid on pregnancy rates in in vitro fertilisation (IVF)	7
22	Coulam 2016	Endometrial immune profiling may help in treating women experiencing recurrent implantation failure	2
23	Kuon 2016	First steps towards a targeted immunomodulatory therapy in patients with recurrent miscarriage and elevated natural killer cells	4
24	Marron 2016	Intracellular cytokine expression in ART implantation failures and recurrent	4

		miscarriages: Response to immune support therapy and outcomes	
25	Fukui 2016	Intralipid for recurrent pregnancy loss or implantation failure women with NK cell abnormality	4
26	Gamaleldin 2016	Intralipid in women with recurrent implantation failure in IVF/ ICSI cycles. A double blinded randomised controlled trial	6
27	Check 2016	Intravenous intralipid therapy is not beneficial in having a live delivery in women aged 40-42 years with a previous history of miscarriage or failure to conceive despite embryo transfer undergoing in vitro fertilization-embryo transfer	7
28	Dakhly 2016	RETRACTED: Intralipid supplementation in women with recurrent spontaneous abortion and elevated levels of natural killer cells (Retracted Article)	8
29	Jerzak 2016	Successful pregnancy after Intralipid addition to sildenafil and enoxaparin in woman with history of recurrent pregnancy loss (RPL)	4
30	Nct 2017	Effect Of Intravenous Intralipid Therapy on Pregnancy Outcome in Women With History of Recurrent Implantation Failure Undergoing Intracytoplasmic Sperm Injection-Embryo Transfer Cycle: a Randomized Controlled Trial	5
31	Shirlow 2017	The Effects of Adjuvant Therapies on Embryo Transfer Success	1
32	Ndukwe 2017	How to manage repeated implantation failure	4
33	Euctr 2017	Intralipid treatment and infertility	5
34	Kuon 2017	Pre-Pregnancy Levels of Peripheral Natural Killer Cells as Markers for Immunomodulatory Treatment in Patients with Recurrent Miscarriage	3
35	Harrity 2018	ART implantation failure and miscarriage in patients with elevated intracellular cytokine ratios: response to immune support therapy	4
36	Ctri 2018	Does Intralipid improve pregnancy outcomes in IVF? A Randomised Controlled Trial	5
37	Singh 2018	Effect of administration of intravenous intralipid on implantation rate in women with implantation failure after IVF/ICSI: A randomized controlled trial	6
38	Al-Zebeidi 2018	The effect of fat emulsion intralipid 20% in reproductive outcome for patients with multiple implantation failure	3
39	Lédée 2018	Intralipid® may represent a new hope for patients with reproductive failures and simultaneously an over-immune endometrial activation	4
40	Singh 2018	Intravenous intralipid on implantation rate in women with implantation failure after IVF/ICSI	6
41	Ctri 2019	Does fat emulsion improves pregnancy outcome in women with repeated IVF failure ?	5
42	Singh 2019	The effect of administration of intravenous intralipid on pregnancy outcomes in women with implantation failure after IVF/ICSI with non-donor oocytes: A randomised controlled trial	1
43	LéDée 2019	Endometrial Immune Profiling: An Emerging Paradigm for Reproductive Disorders	5
44	Raut 2019	Immunomodulation with lymphocyte immunization therapy (LIT) and other immunomodulators in unexplained recurrent IVF failures -is it worth?	4
45	Ctri 2019	To explore the immunological basis in women with repeated IVF failure and to study the effect of fat emulsion on natural killer cells during IVF in these women	5
46	Deepika 2019	Uterine Nk Cell Activity in Recurrent Implantation Failure- Role of Intralipids	7
47	Hentschke 2020	Is the intravenous lipid emulsion use related to higher pregnancy and live birth rates in patients submitted to in vitro fertilization?	7
48	Foyle 2021	Effect of Intralipid infusion on peripheral blood T cells and plasma cytokines in women undergoing assisted reproduction treatment	4
49	Al-Zebeidi 2020	Effect of empiric intravenous intralipid therapy on pregnancy outcome in women with unexplained recurrent implantation failure undergoing intracytoplasmic sperm injection-embryo transfer cycle: a randomized controlled trial	8
50	Cheloufi 2021	The Endometrial Immune Profiling May Positively Affect the Management of Recurrent Pregnancy Loss	2
51	Irct20140305016858N 2021	Evaluation of the effectiveness of intralipid infusion for patients with a history of 2 unsuccessful embryo transfers	5
52	Yamaya 2021	Intralipid therapy for recurrent implantation failure and recurrent pregnancy loss patients with elevated NK cell activity	5
53	Das 2021	Successful fertility outcome in a couple with recurrent implantation failure and testicular cancer survivor: A case report	4
54	Onyshchuk 2021	Treatment of patients with elevated NK cytotoxicity by IvIg orlipide mulsion: Same result sbutt hrough different ways	7
55	Bespalova 2021	Experience with intralipid in early reproductive losses. [Russian]	5
56	Rogenhofer 2022	Clinical effects of intravenous intralipid in patients with recurrent spontaneous abortions and positive anti-trophoblast antibodies (ATAK)	7

57	Harby 2022	Correlation of TNF-alpha, IFN-gamma and TGF-beta Expression with In-vitro Fertilization Success Rates in Women with Recurrent Implantation Failure Undergoing Treatment with Intra-lipid Infusion	4
58	Irct2022072505555N 2022	Effectiveness of intralipid in fertility rate in recurrent implantation failure (RIF) in frozen embryo transfer cycles	5
59	FabregatReolid 2022	The role of pharmacogenetics for individualized adjuvant therapy in patients with recurrent implantation failures	5
60	Saad 2022	A Therapeutic Protocol in Previous Failed ART Patients With High Total NK Cells: An RCT	7
61	Abisror 2023	Adalimumab for Immune Related Infertility: Efficacy and Safety from Prospective French Multicenter Registry	2
62	Canella 2023	Altered profile of plasma phospholipids in woman with recurrent pregnancy loss and recurrent implantation failure treated with lipid emulsion therapy	2
63	Irct20221016056198N 2023	The effect of intralipid in recurrent implantation failure	5
64	Karin 2023	Efficacy of intralipid administration to improve in vitro fertilization outcomes	5
65	Zhernakova 2023	Evaluation of the effectiveness of third-generation lipid emulsion therapy for early pregnancy loss	2
66	Henshaw 2023	Intralipid infusion therapy as an adjunct treatment in women experiencing adenomyosis-related infertility	1
67	Cerna 2023	POSTER 6Efficacy of intralipid administration to improve in vitro fertilization outcomes	3
68	Zhernakova 2023	Evaluation of the effectiveness of third-generation lipid emulsion therapy for early pregnancy loss. [Russian]	2
69	Ji 2024	Effect of Intralipid Immunotherapy on Pregnancy Rates in Patients Who Have Experienced Ivf Failure	7
70	Tunc 2024	Relation between Uterine Immune Response with Recurrent Implantation Failure and Recurrent Miscarriage: Preliminary Results	4
71	Relovska 2025	Can We Use Immunological Modulations as a Treatment for Recurrent Implantation Failure and Recurrent Pregnancy Loss?	5
72	Irct20240515061807N 2025	Studying the effect of platelet-rich plasma (PRP) and intralipid therapies on pregnancy outcomes in patients with recurrent implantation failure	5