Supplementary Material

Dual versus Single Ovulation Triggers in In Vitro Fertilization and Intracytoplasmic Sperm Injection: A Systematic Review and Meta-Analysis

Contents

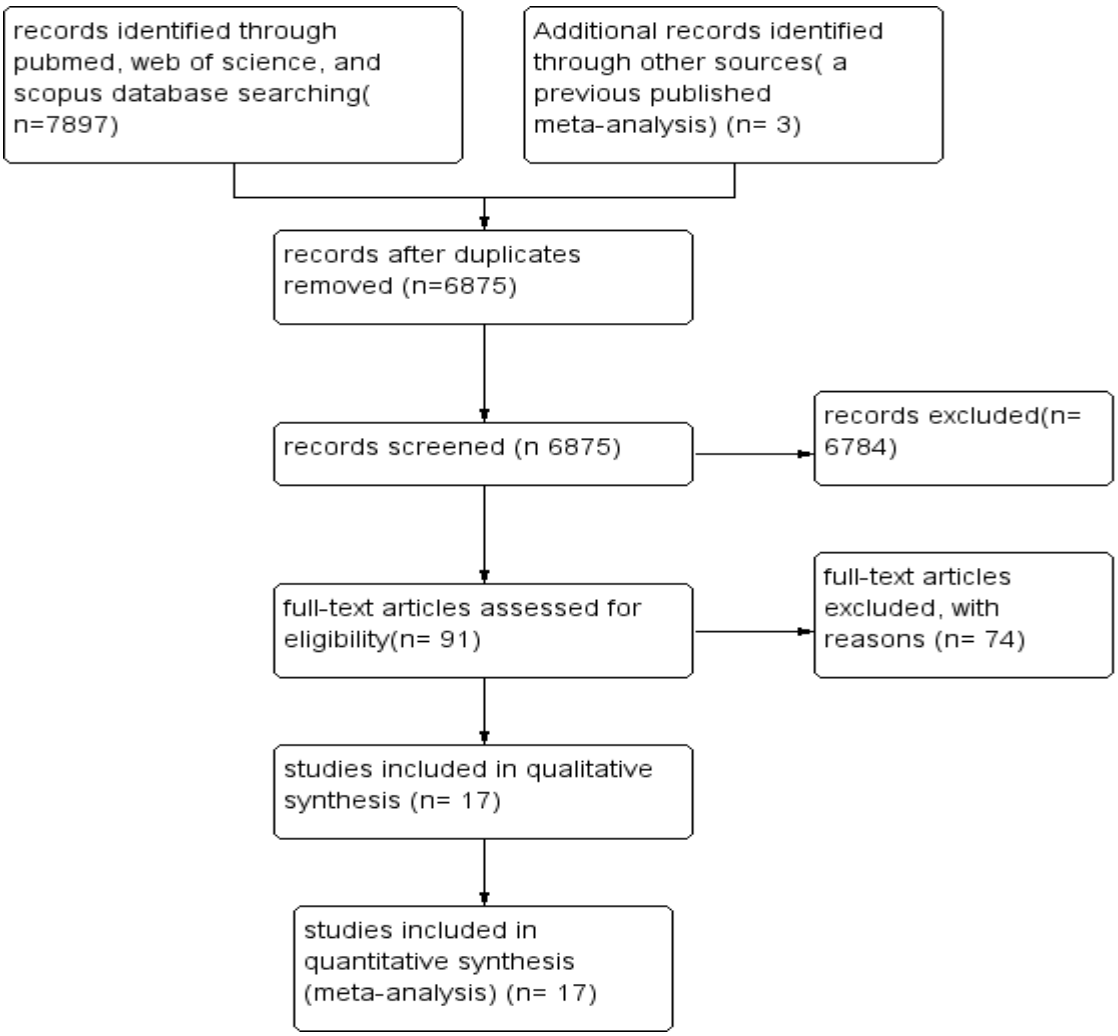
Table 1. Summary of the included studies

Study ID	Study design	Intervention group	Control group	Measured outcomes
Abed,2020	Prospective Cohort	dual trigger	hcg	Pregnancy rate, number of oocytes retrieved, and fertilization rate,
Ali,2020	RCT	dual trigger	hcg	Chemical pregnancy rate, Clinical pregnancy rate, Miscarriage rate, Multiple pregnancy rate, Live birth rate, Implantation rate
Decleer, 2014	RCT	dual trigger	hcg	MII oocytes, Cumulus Oocyte Complexes, 2PN oocytes, Cryopreserved embryos, Patients with at least one top quality embryo, Patients with embryos for cryopreservation, Implantation rate, On-going Pregnancy rate.
Eftekhar, 2017	RCT	dual trigger	hcg	Clinical pregnancy rate, implantation rate, chemical pregnancy, ongoing pregnancy, and abortion rate.
Farouk, 2024	RCT	dual trigger	hcg	Chemical pregnancy, clinical pregnancy, cycle cancellation, total quantity of recovered oocytes, good-quality embryos, and clinical pregnancy rate.
Haas, 2020	RCT	dual trigger	hcg	Number of mature oocytes (MII), total number of oocytes, zygotes, blastocysts, top-quality blastocysts, clinical pregnancy rate, implantation rate, live birth rate per transfer, and per patient.
Keskin, 2023	RCT	dual trigger	hcg	Implantation rate, Pregnancy rate, Live birth rate, Twin pregnancy, Abortion rate.
Kim, 2014	RCT	dual trigger	hcg	No. of cycles, Total dose of rhFSH (IU), Days of GnRH antagonist, On the day of HCG, No. of follicles ≥16 mm, Endometrial thickness (mm), No. of oocytes retrieved, No. of mature oocytes, number of fertilized, embryo transfer, clinical pregnancy rate, implantation rate, multiple pregnancy, miscarriage, live birth rate.
Maged, 2020	RCT	dual trigger	hcg	The primary outcome parameter was the number of oocytes retrieved. Secondary outcomes included the number of metaphase II oocytes, cancellation rate, number of obtained embryos, and chemical and clinical pregnancy rates.
Meng-Han Yan, 2023	RCT	dual trigger	hcg	The cumulative pregnancy rate, Live birth rate, Number of D3 embryos available for transfer, Number of 2PN embryos, Number of remaining frozen embryos, Number of 2PN embryos,
Schachter, 2008	RCT	dual trigger	hcg	Oocyte pick-up day serum levels of E2, P, LH, and FSH, and implantation and pregnancy rates per started cycle and per completed cycle.
Singh, 2023	RCT	dual trigger	hcg	Oocytes retrieved, OCC grade 1, OCC grade 2 (n), MII oocytes (n), 2PN (n), Fertilization rates, Embryos (n), Grade-I embryos, Embryos frozen(n), Clinical Pregnancy Rate.
Svenstrup, 2024	RCT	dual trigger	hcg	Positive pregnancy test, biochemical pregnancy, clinical pregnancy. Pregnancy rate, Progesterone concentration.
Zhou, 2022	RCT	dual trigger	hcg	Number of mature oocytes, Mature oocyte rate, Number of 2PN embryo, Fertilization method, Fertilization rate IVF, Number of cleaved embryos, Cleavage rate, Number of good-quality embryo, Good- quality embryo rate, Number of viable embryos, Viable embryo rate, Biochemical pregnancy rate, Clinical pregnancy rate, Implantation rate, Miscarriage rate, Ongoing pregnancy rate, Live birth rate.
Mahajan, 2016	RCT	dual trigger	hcg	Total oocytes retrieved, MII oocytes. The primary outcome measure was to compare the number of Metaphase II (MII) oocytes and the number

				of usable embryos (those suitable for transfer and cryopreservation) on day 3 between the two groups. A subgroup analysis was performed for patients with AMH <1.4 ng/ml.
Alleyassin 2018	RCT	dual trigger	hcg	Number of oocytes retrieved, Number of oocytes MII, Number of oocytes MI, Number of embryos cryopreserved, Number of high-quality embryos
Humaidan, 2006	RCT	dual trigger	hcg	Number of oocytes, number of embryos, Rate of transfer, number of embryos transferred, Positive HCG per embryo transfer, Clinical pregnancy per embryo transfer, Clinical pregnancy per cycle, Implantation rate, Early pregnancy loss

AMH, anti-Müllerian hormone; E2, estradiol; FSH, follicle-stimulating hormone; GnRH, gonadotropin-releasing hormone; hCG, human chorionic gonadotropin; IVF, in vitro fertilization; ICSI, intracytoplasmic sperm injection; LH, luteinizing hormone; MII, metaphase II oocytes; MI, metaphase I oocytes; OCC, cumulus–oocyte complex; OR, odds ratio; 2PN, two-pronuclei; rhFSH, recombinant follicle-stimulating hormone; SD, standard deviation.

Figure 1: PRISMA flow diagram for new systematic reviews that included searches of databases and registers only



*Consider, if feasible to do so, reporting the number of records identified from each database or register searched (rather than the total number across all databases/registers).

**If automation tools were used, indicate how many records were excluded by a human and how many were excluded by automation tools.

Figure S2: Risk of bias of included studies.

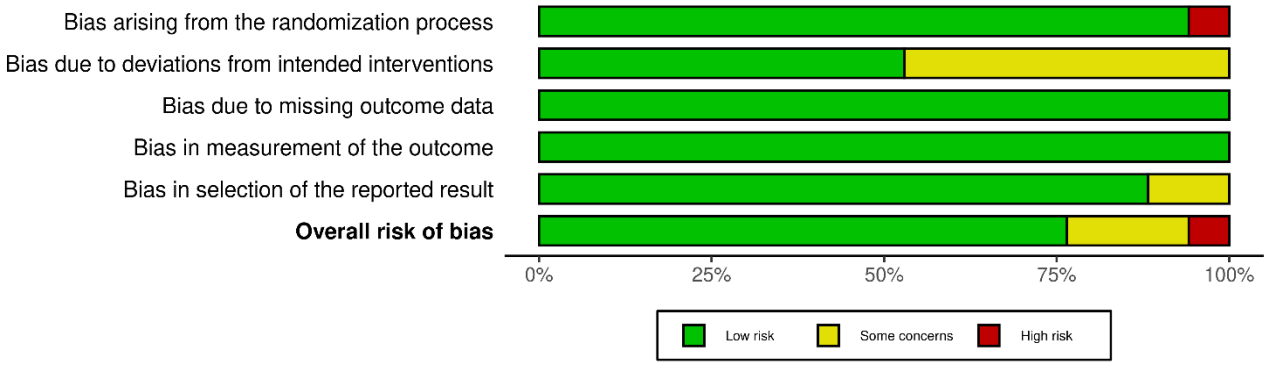


Figure S3: Total Oocyte

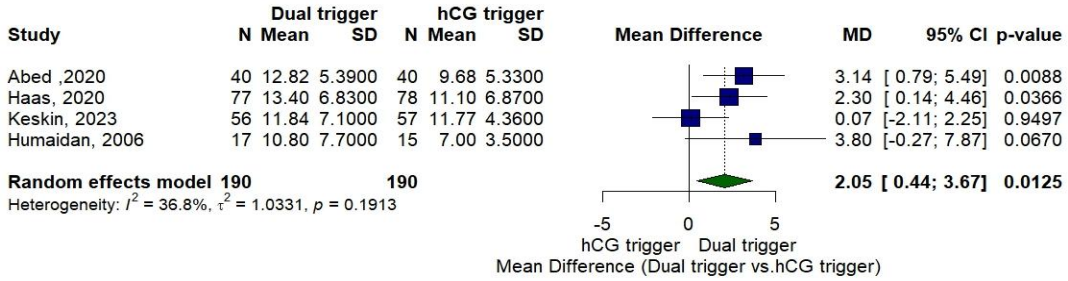


Figure S4: Mature oocyst (MII)

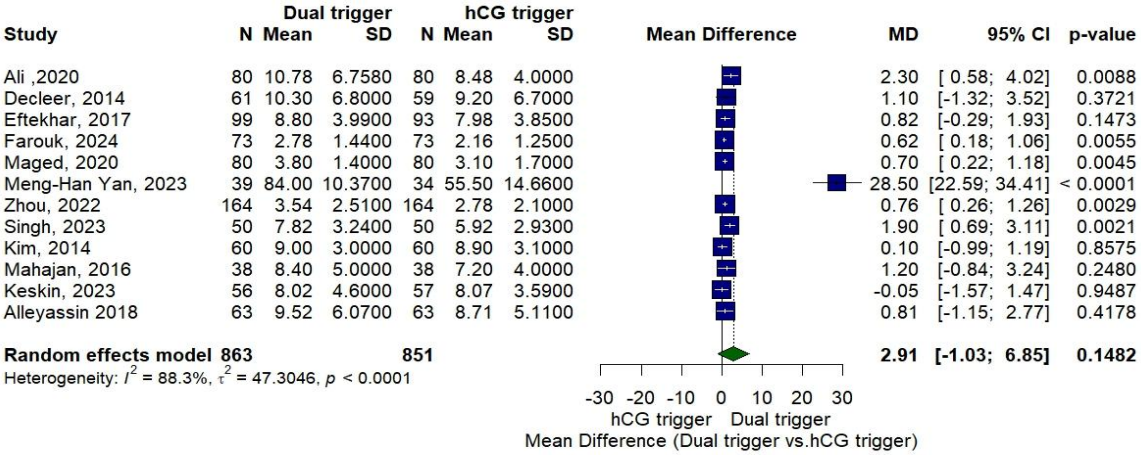


Figure S5: Oocyte Retrieval

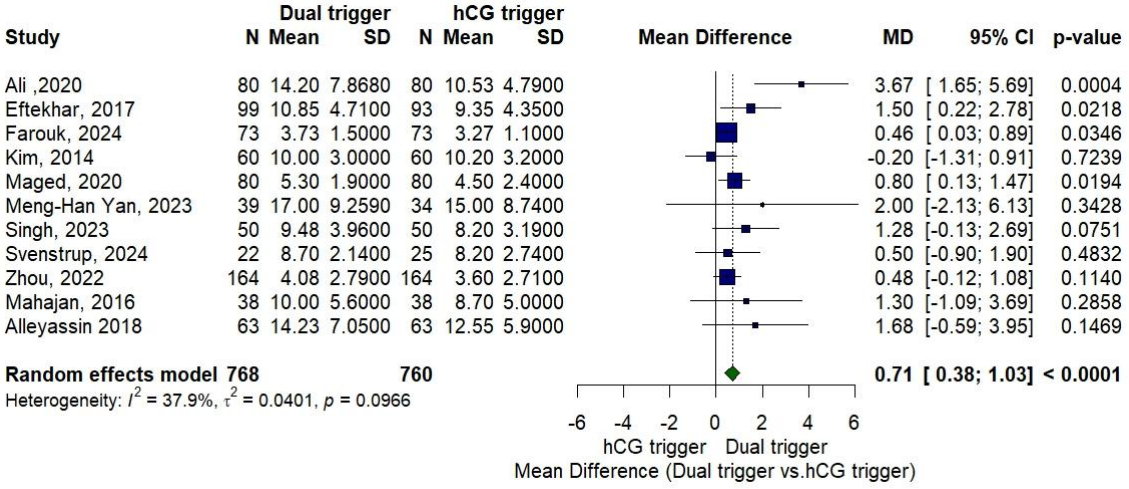


Figure S6: Fertilized Oocytes

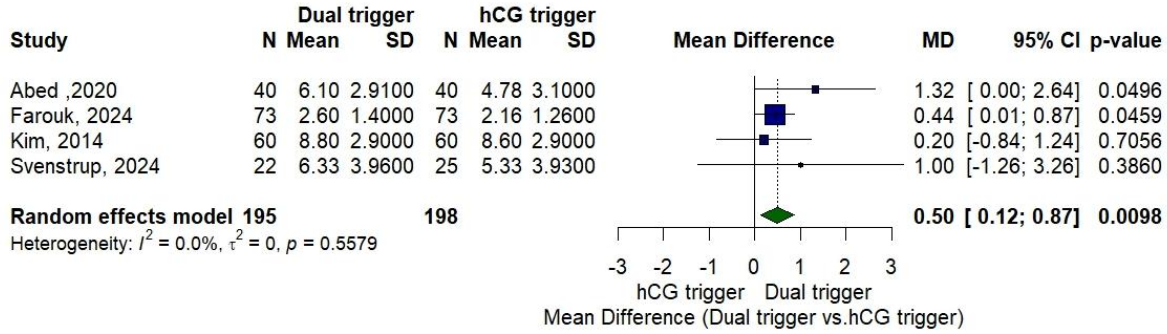


Figure S7: Cryopreserved Oocyte

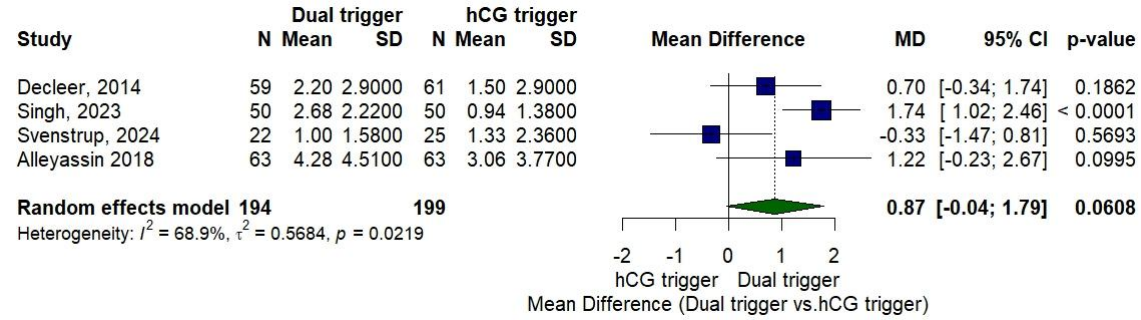


Figure S8: Follicles > 10mm at trigger

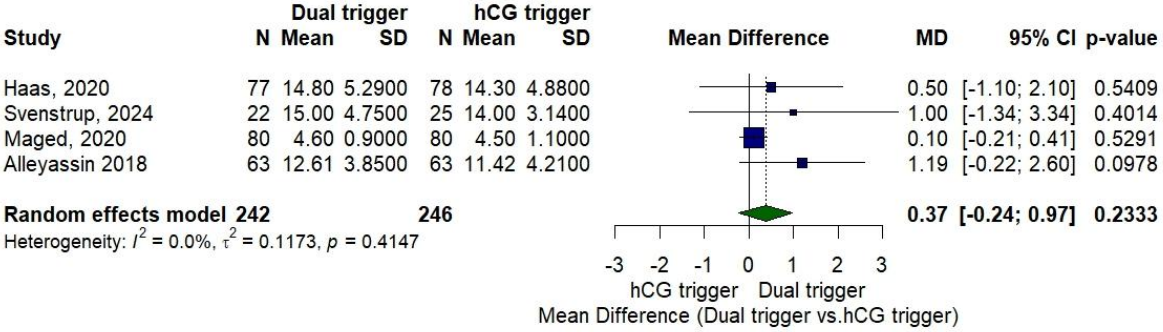


Figure S9: Follicles >15mm at trigger day

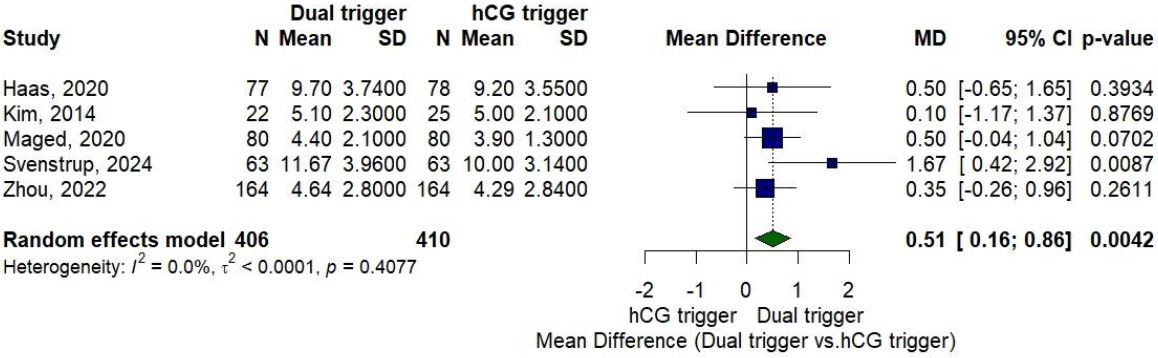


Figure S10: Cleavage Rate Oocyte/ Embryo

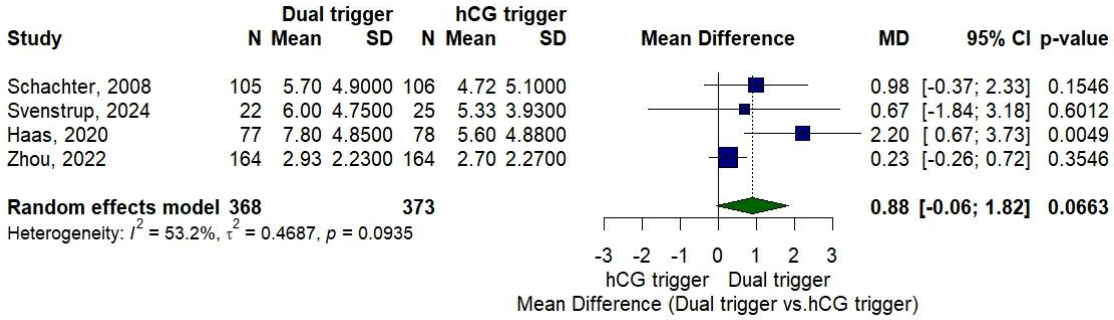


Figure S11: Viable embryo

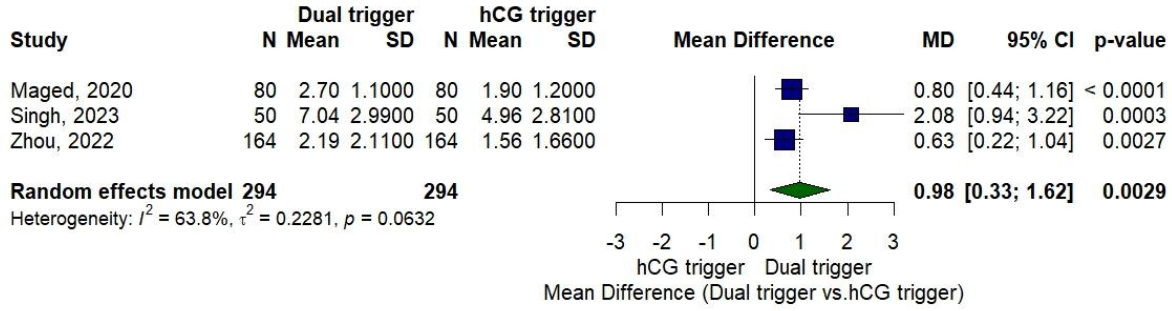


Figure S12: Duration of Stimulation

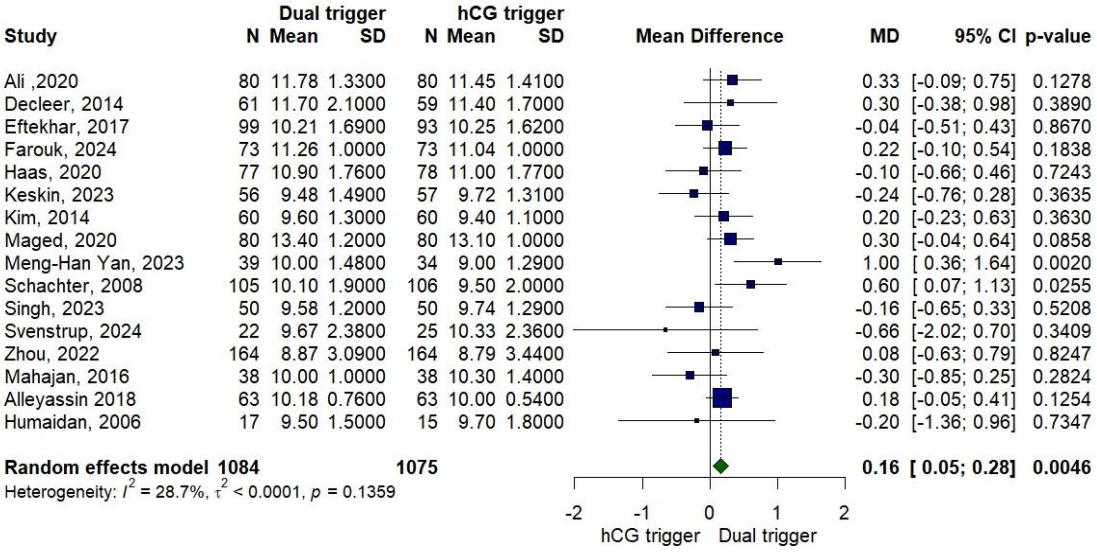


Figure S13: Endometrial thickness on trigger day

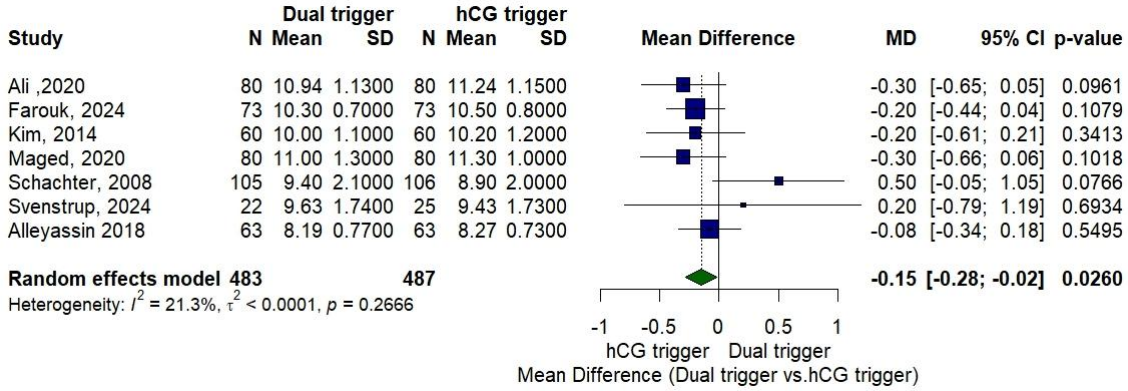


Figure S14: Estradiol level (E2) on trigger day

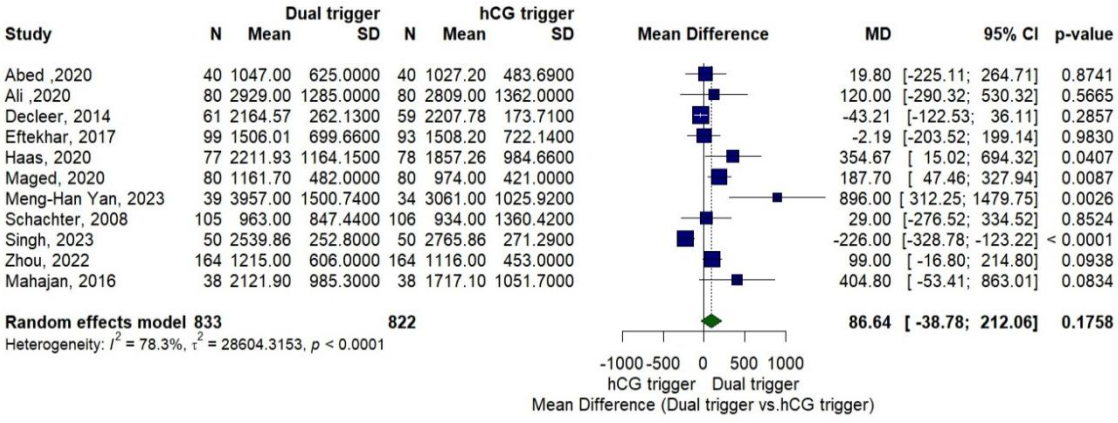


Figure S15: Progesterone level on trigger

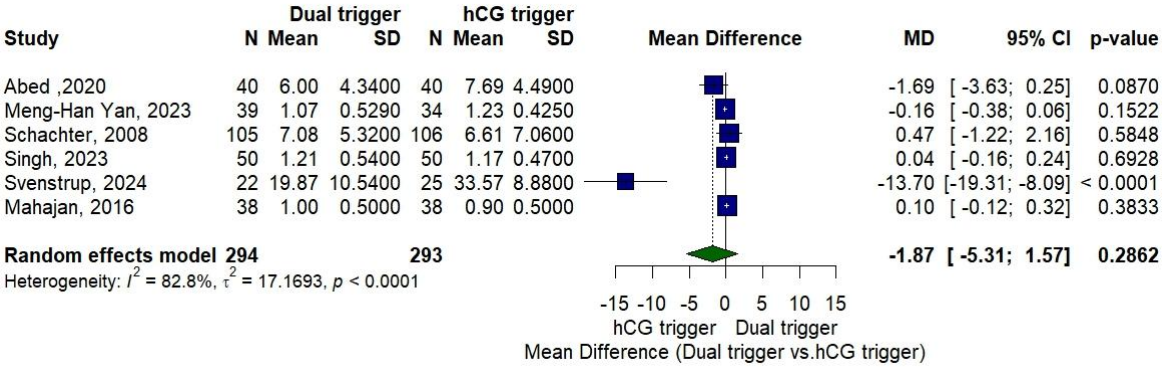


Figure S16: X2 Pronucleate (2PN)

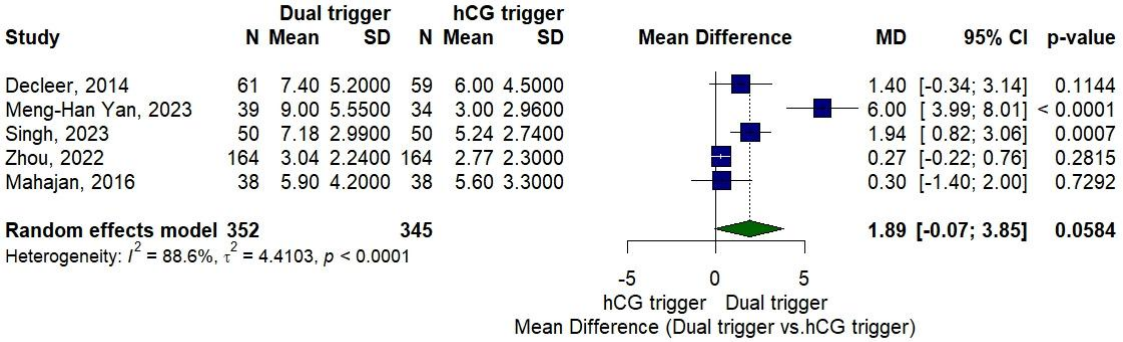


Figure S17: Embryo transfer

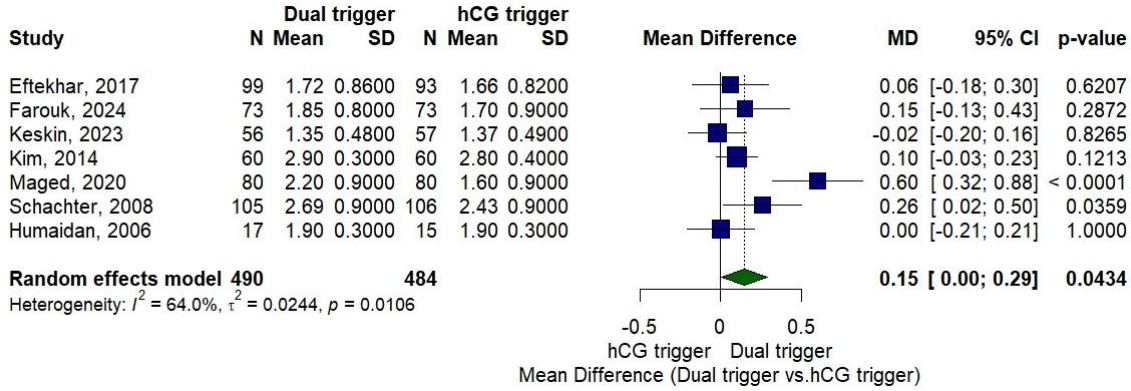


Figure S18: Multiple pregnancy

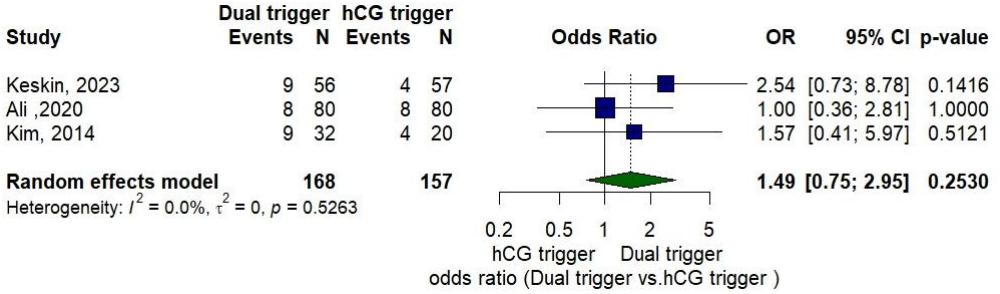


Figure S19: Good quality embryo odds ratio

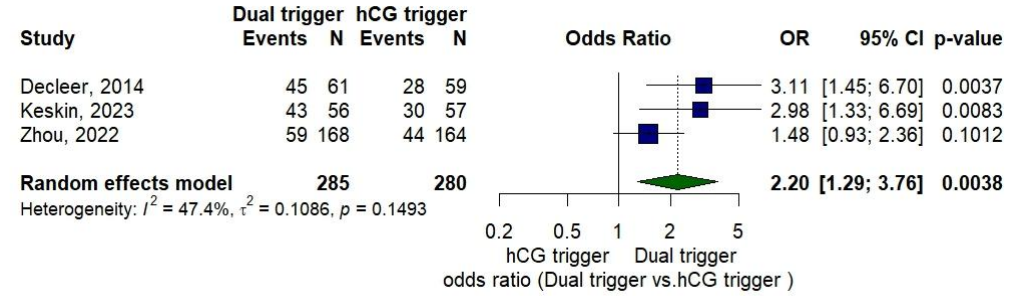


Figure S20: Good quality embryo Mean Difference

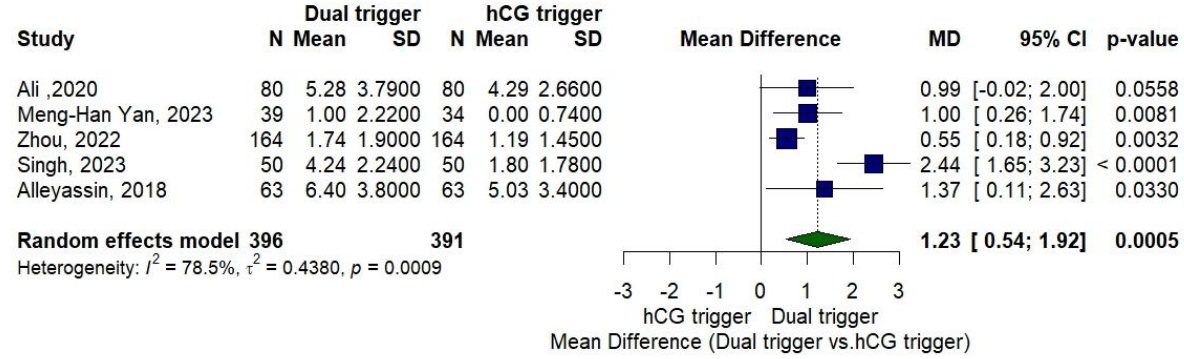


Figure S21: total dose of gonadotropin

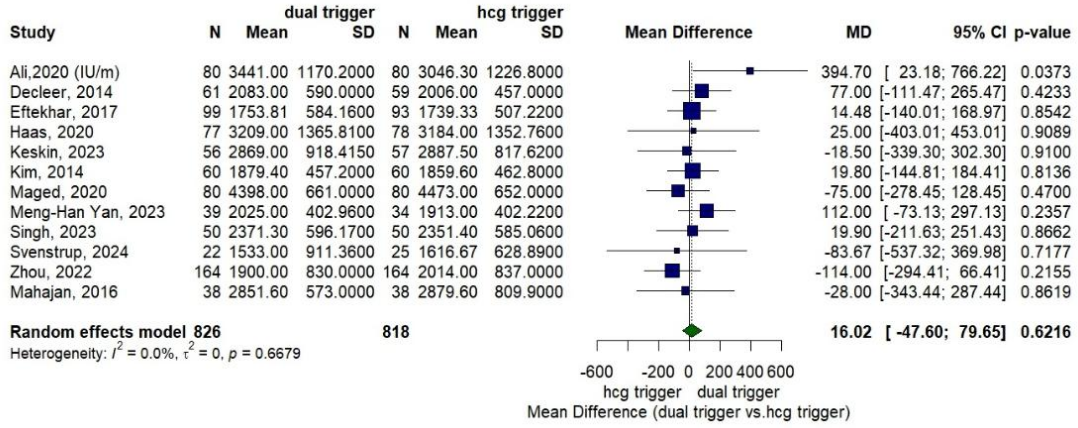


Figure S22: Abortion Rate

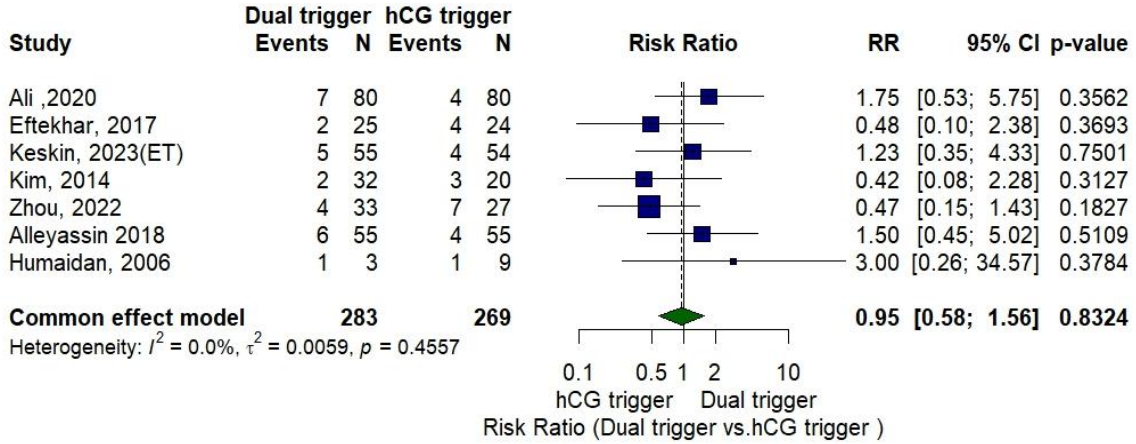


Figure S23: Cancellation rate

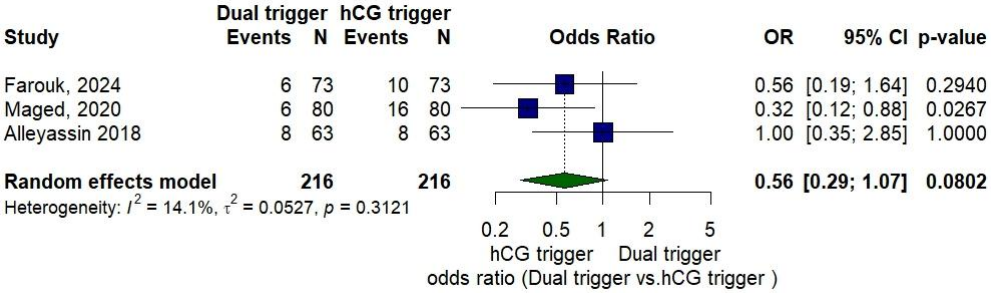


Figure S24: live birth

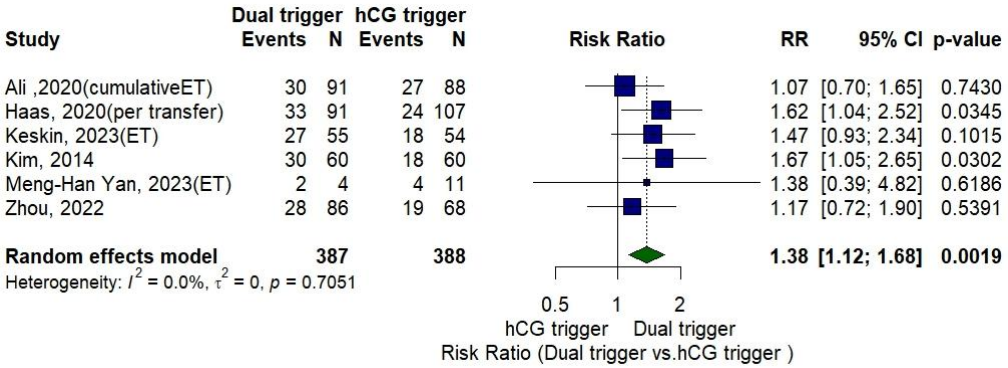


Figure S25: implantation rate

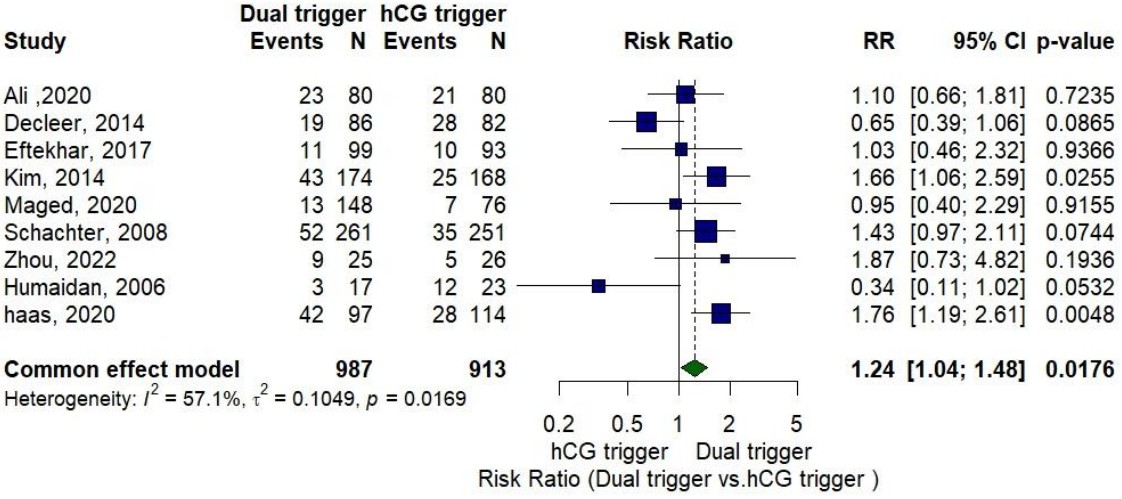


Figure S26: Ongoing Pregnancy Rate

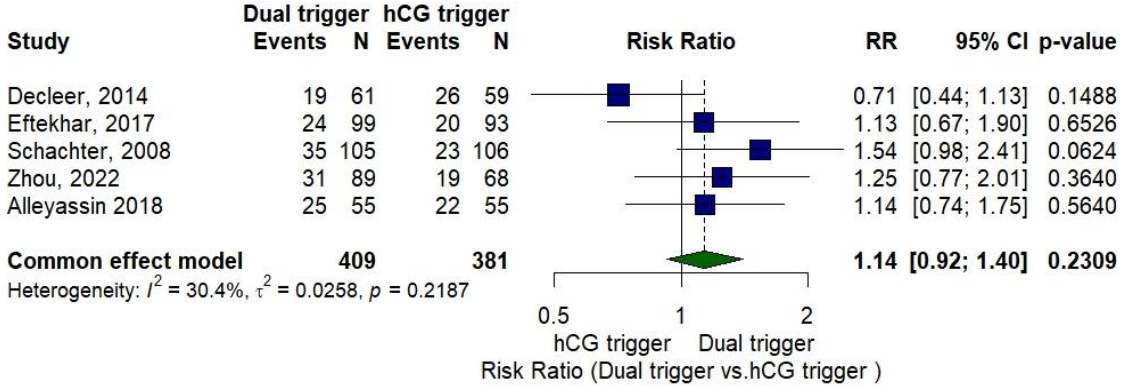


Figure S27: Sensitivity Analysis: cleavage rate of oocyst embryo

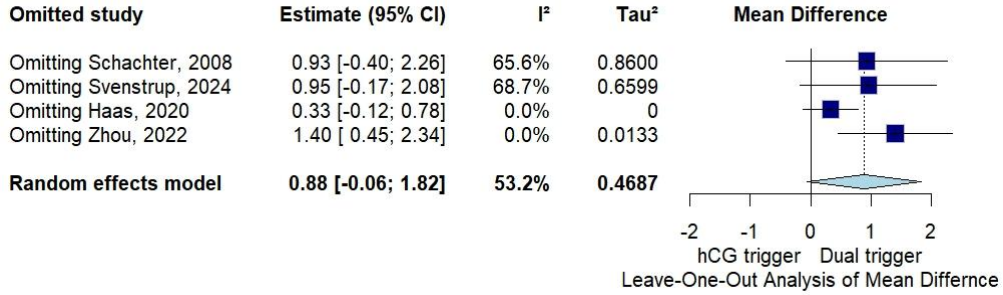


Figure S28: Sensitivity Analysis cryopreserved

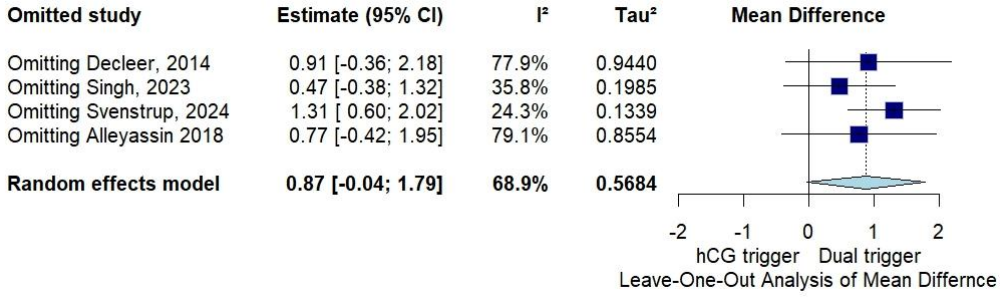


Figure S29: Sensitivity Analysis of estradiol level E2 on trigger day

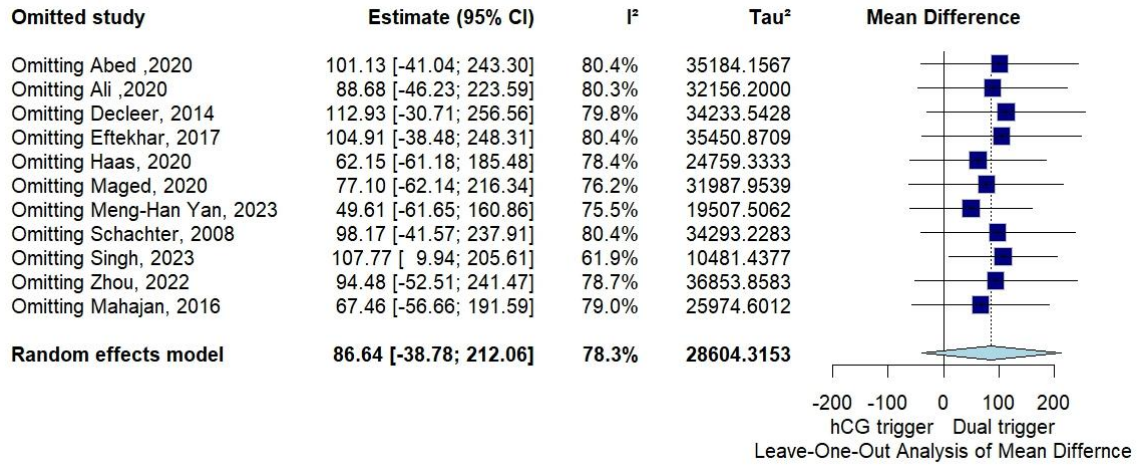


Figure S30: Sensitivity Analysis: A good quality embryo

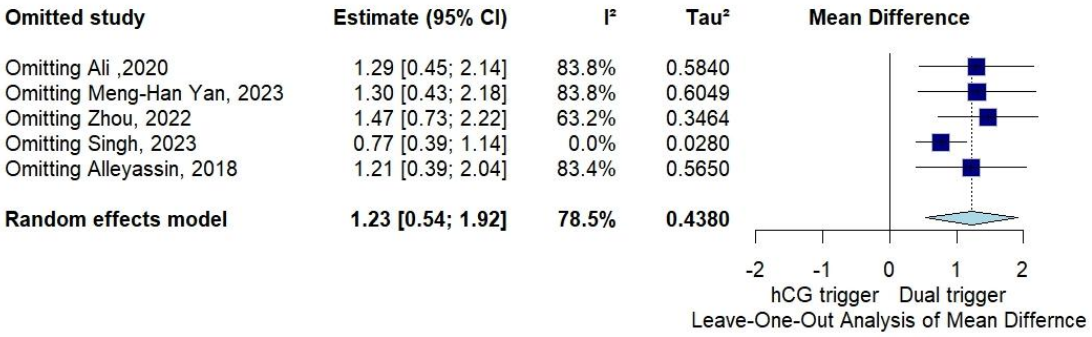


Figure S31: Sensitivity Analysis X2 Pronucleate (2PN)

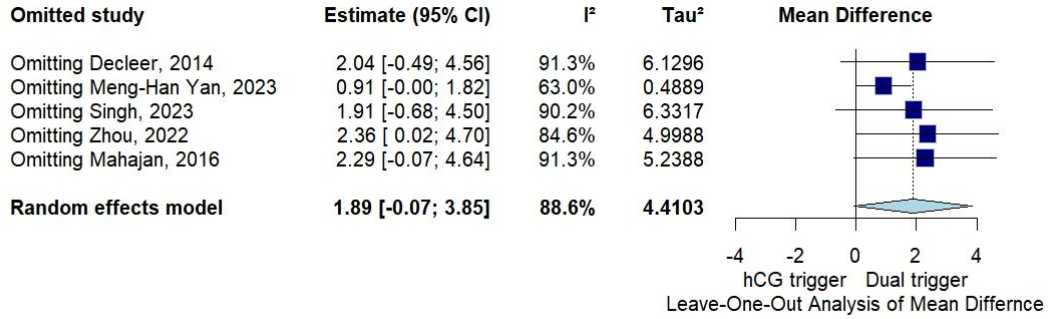


Figure S32: Sensitivity Analysis of progesterone level on trigger day

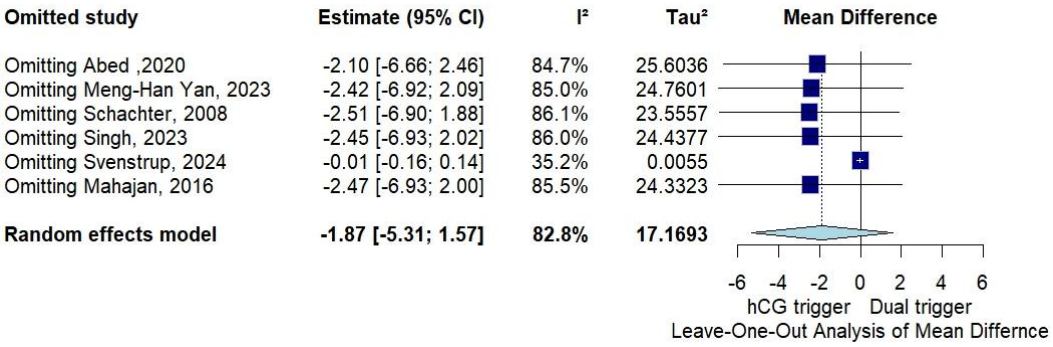


Figure S33: Sensitivity Analysis: A viable embryo

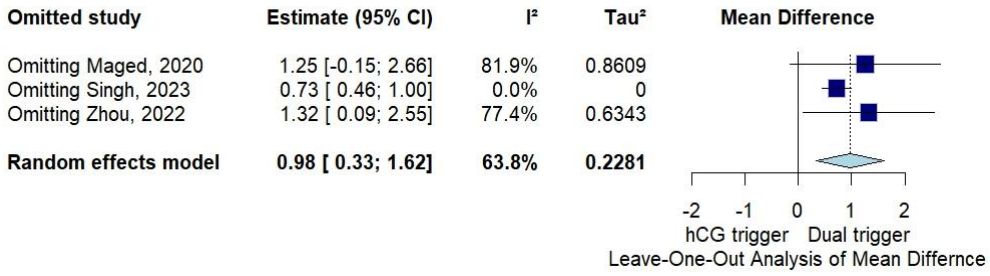


Figure S34: Biochemical Pregnancy Rate

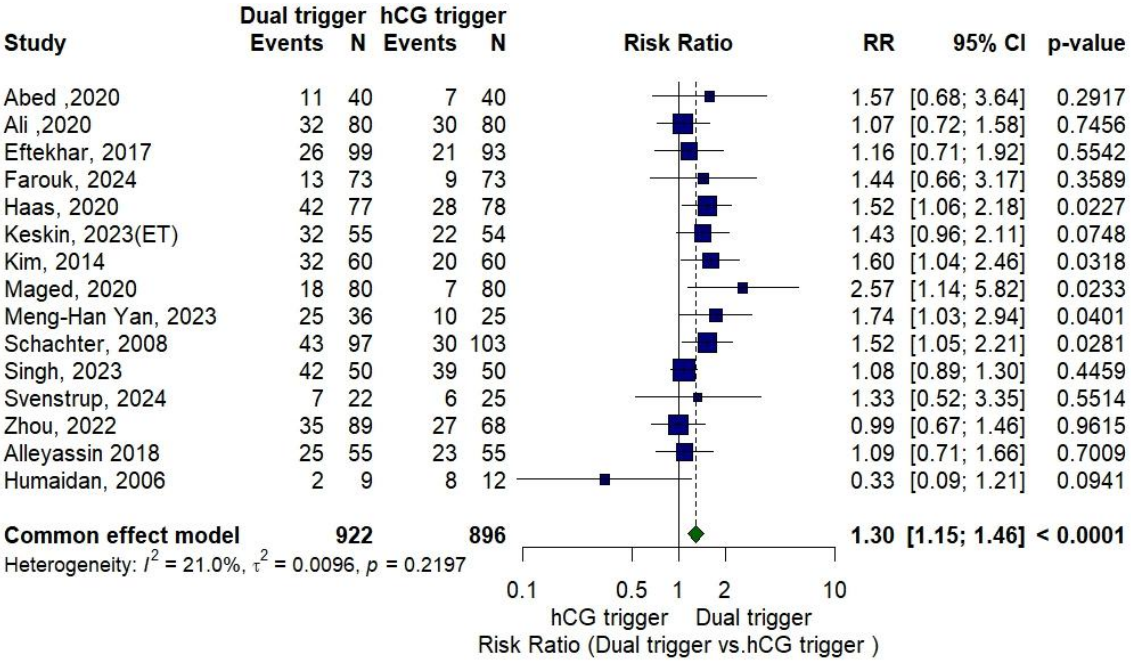


Figure S35: Sensitivity Analysis Mature oocyst (MII)

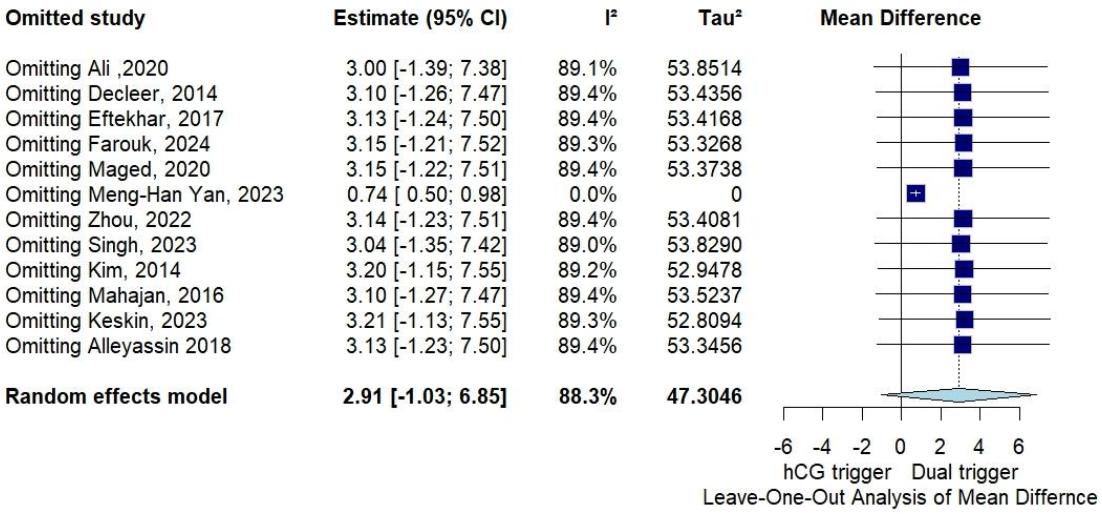


Figure S36: Clinical pregnancy

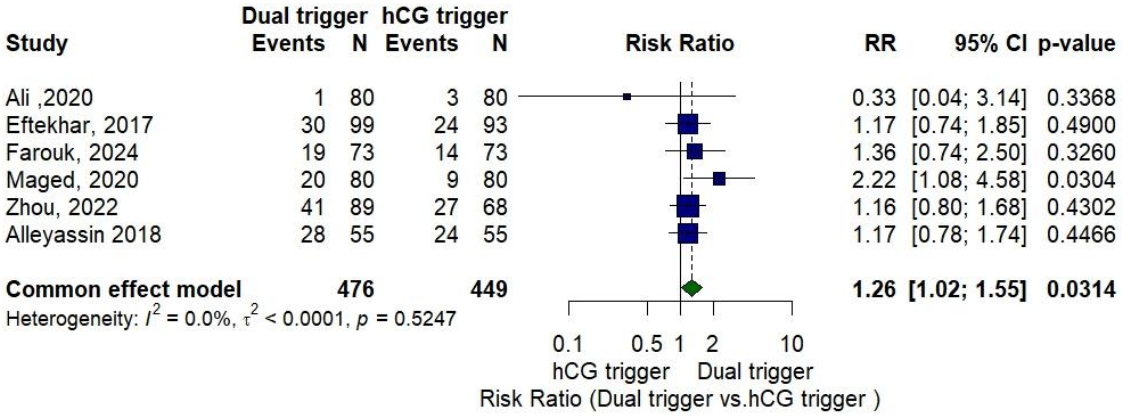


Figure S37: Sensitivity Analysis of Implantation Rate