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האגודה הישראלית לחקר הפוריות (איל"ה)
THE ISRAEL FERTILITY ASSOCIATION (IFA)
الجمعية الإسرائيلية لأبحاث الخصوبة

The influence of Post Thaw Embryo Culture on FET outcomes – A Meta-Analysis

Adva Cahen Peretz^{1,2*}, Lilah Tsaitlin-Mor^{1,2*}, Tomer Ben-Shushan², Anat Hershko-Klement^{1,2}, and Yaakov Bentov^{1,2}

¹IVF - Obstetrics and Gynecology department, Hadassah Mount Scopus medical center, Jerusalem, Israel.

² Faculty of Medicine, Hadassah-Hebrew University, Jerusalem, Israel.

*Equal contributions

Objective:

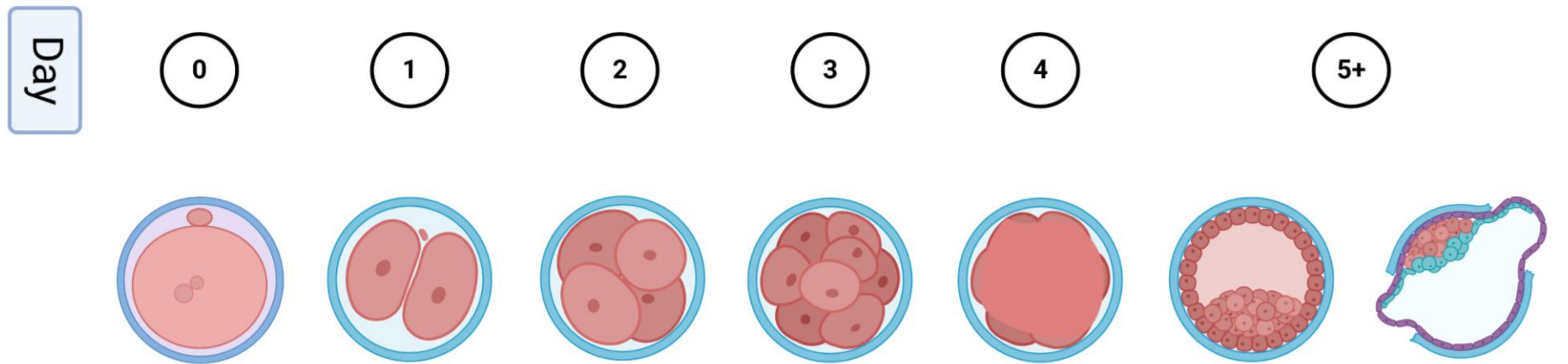
With the advent of vitrification, a significant proportion of embryo transfers now involve frozen-thawed embryos. However, there is conflicting evidence regarding the impact of culturing thawed embryos before transfer compared to immediate transfer. This systematic review and meta-analysis aimed to evaluate the impact of post-thaw culture duration on FET outcomes across different embryonic developmental stages.

Study Design:

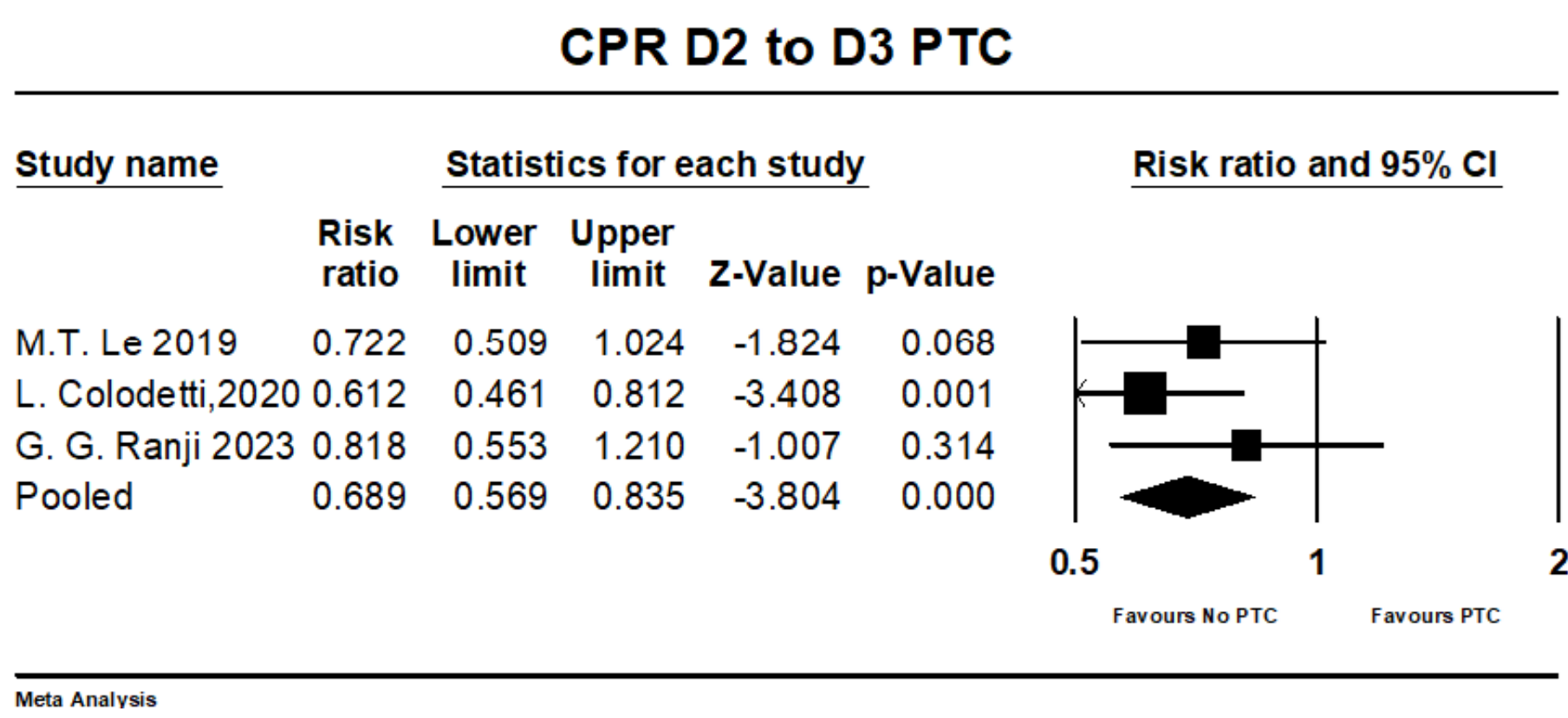
The analysis investigated four distinct post-thaw culture protocols: A. Day 2 extended vs. day 2 (N=879) B. day 3 extended vs. day 3 (N=11,204) C. day 3 extended to day 5/6 vs. day 5/6 (N=1,449) and D. day 5/6 extended to day 5/6 (N=3,883). Extended culture ranged from 18 to 48 hours. We adhered to PRISMA guidelines and conducted a comprehensive search of Medline, Embase, Web of Science, Cochrane, and relevant reference lists up to December 31, 2024, including observational and randomized trials exploring the association. Studies involving slow-frozen embryos or comparing outcomes of embryos transferred at different ages were excluded. Two independent reviewers performed data extraction. Pooled relative risks (RRs) with 95% confidence intervals (CIs) and heterogeneity were calculated. Fixed or random-effects models were applied based on the degree of heterogeneity.

Results:

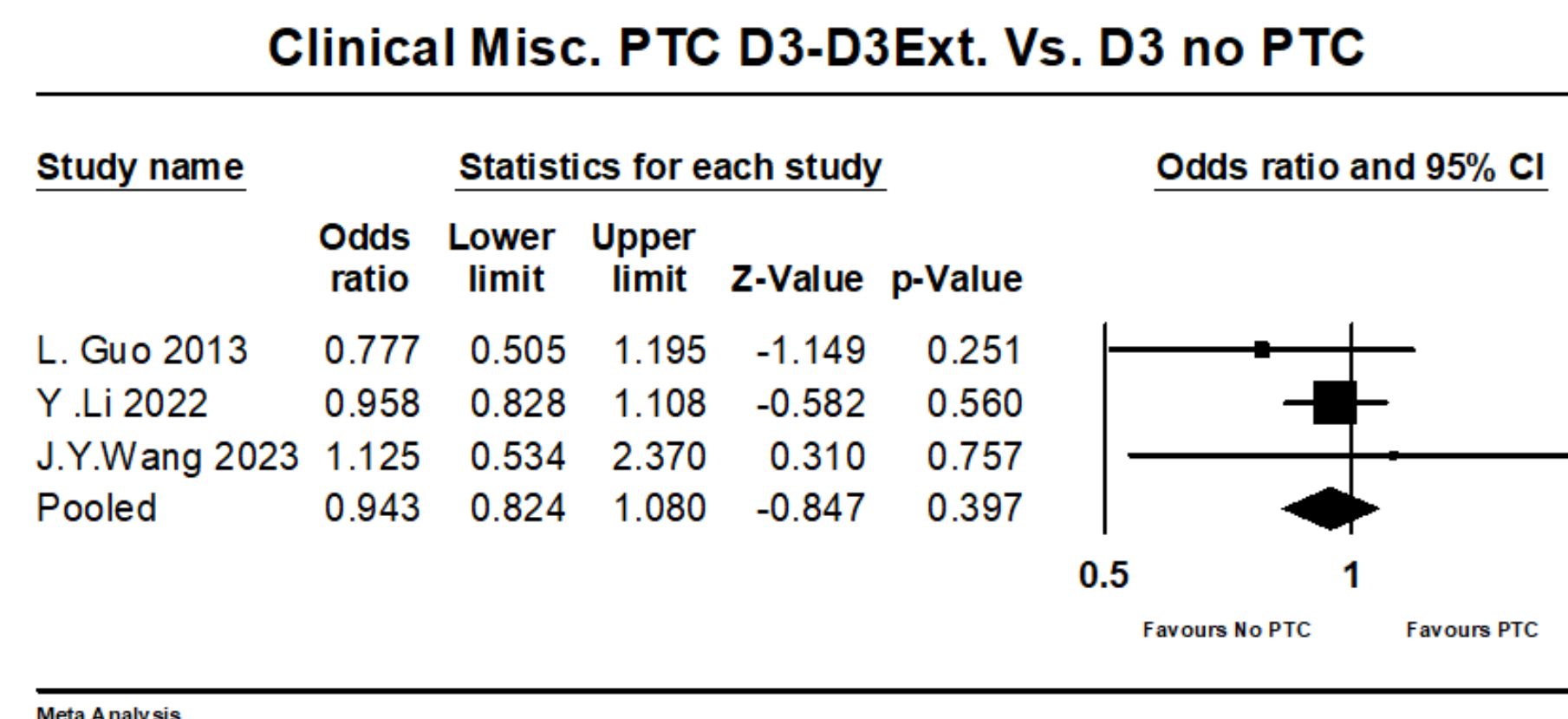
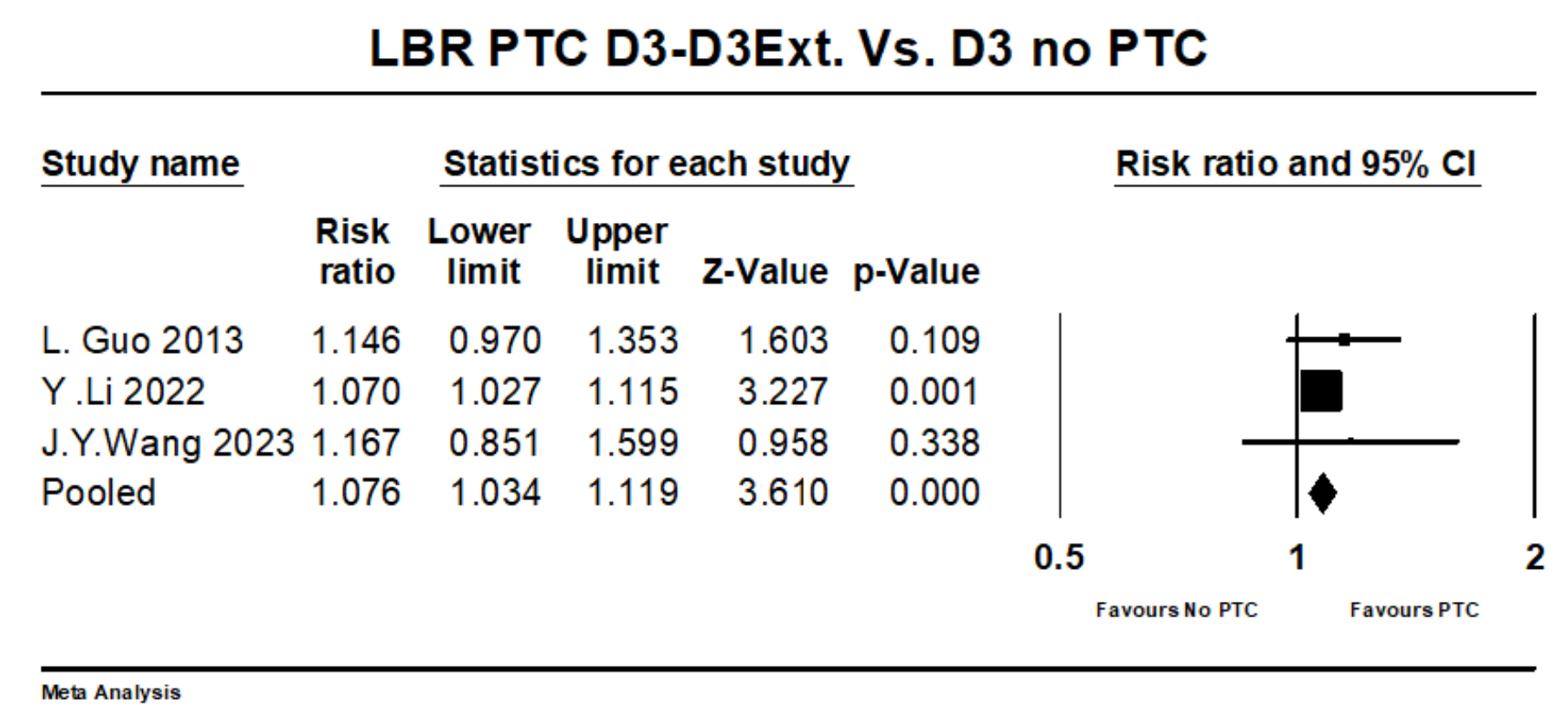
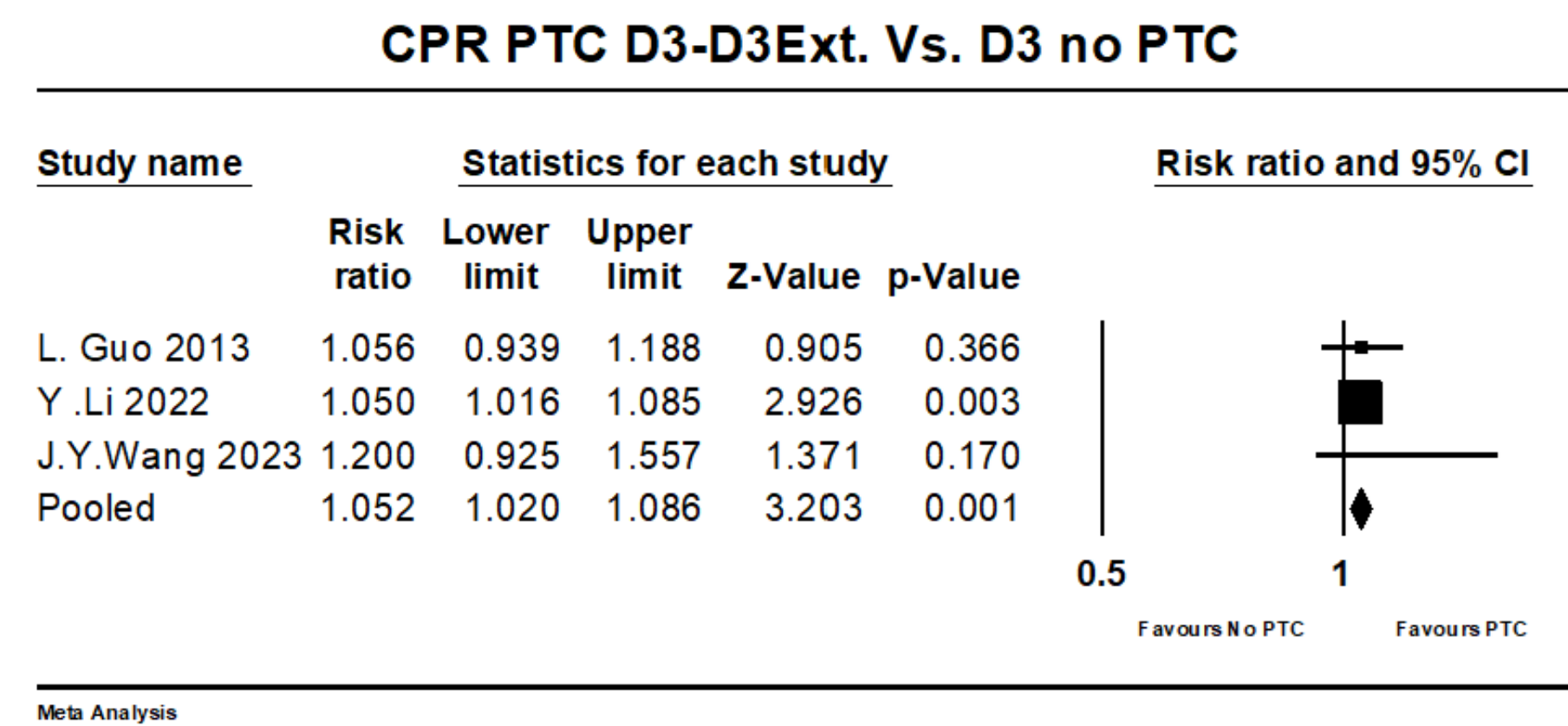
Fourteen studies were included after screening nearly 1,500 abstracts[1-14]. Significantly improved implantation, clinical pregnancy, and live birth rates were demonstrated in groups B and C (RR for live birth 1.07 (95% CI 1.034-1.119) and 1.229 (95% CI 1.008-1.499) respectively). In contrast, the other groups showed either no improvement or adverse outcomes.



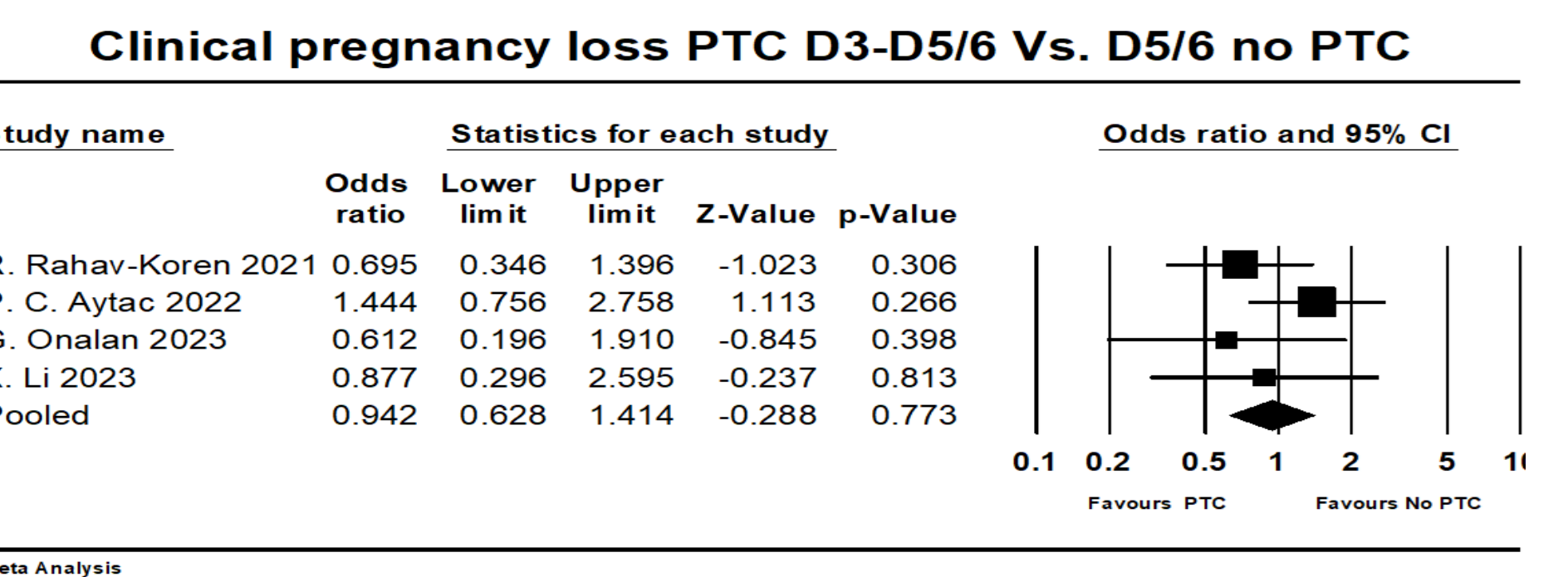
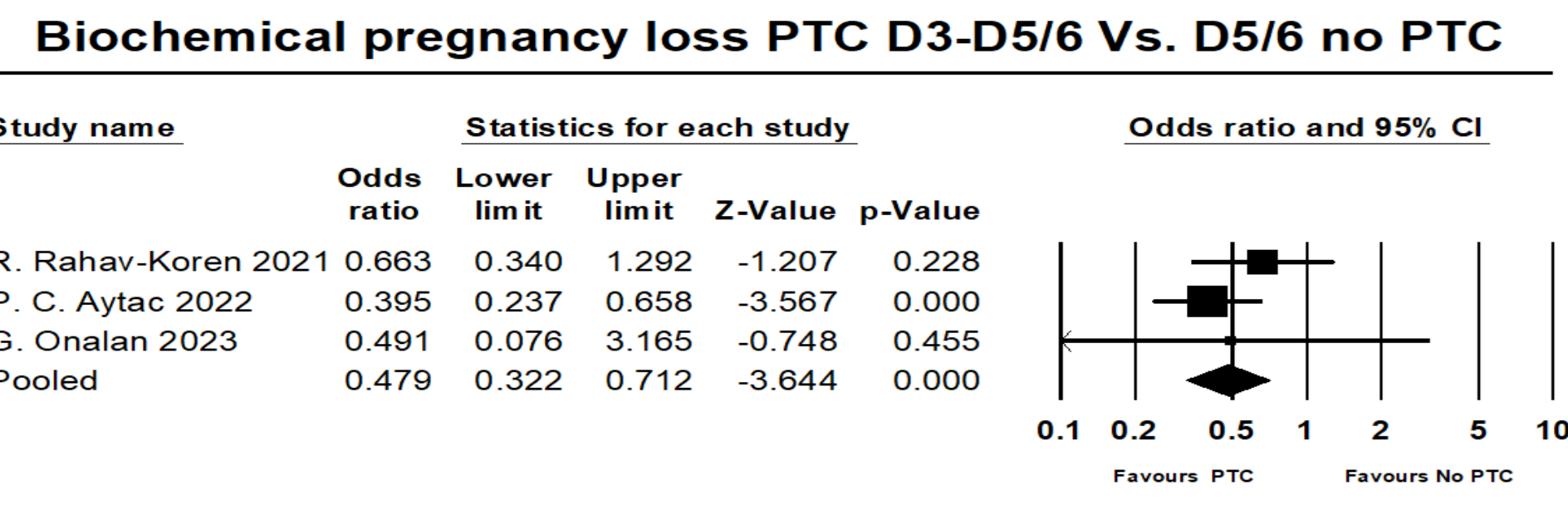
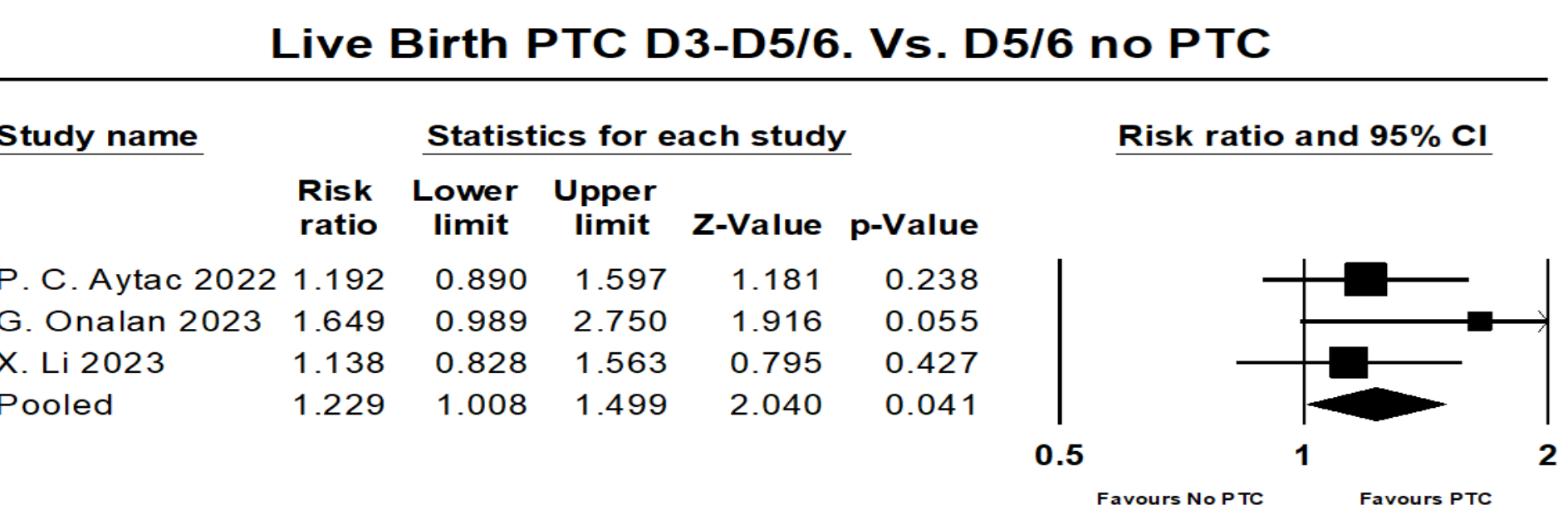
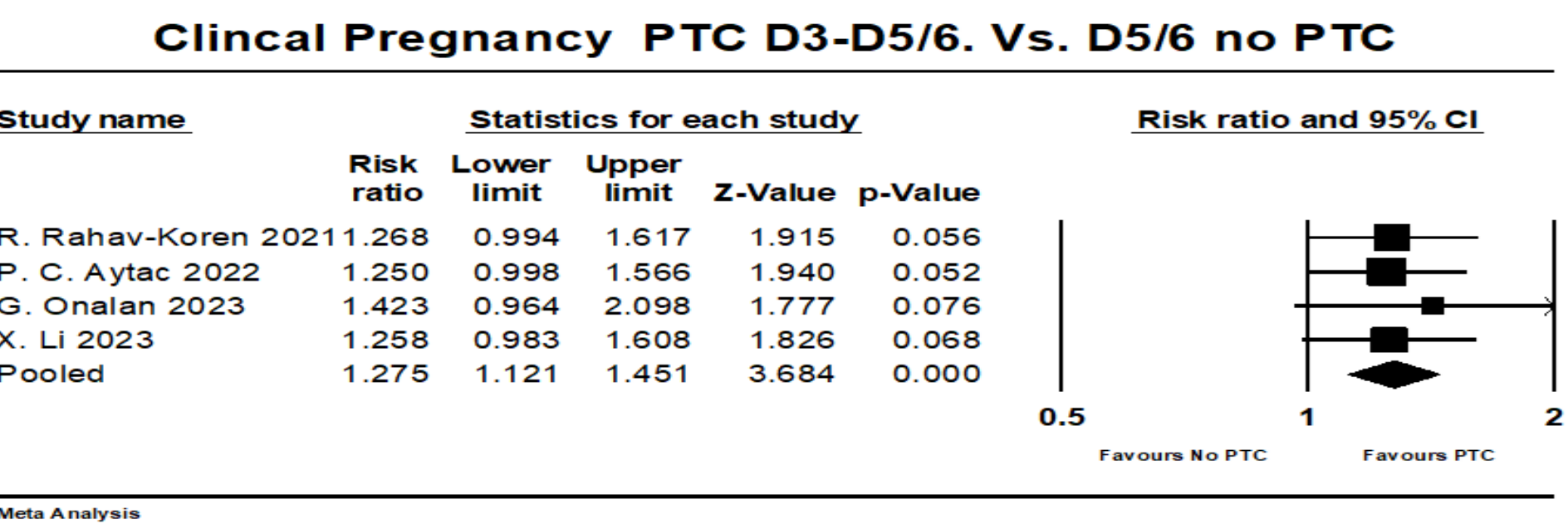
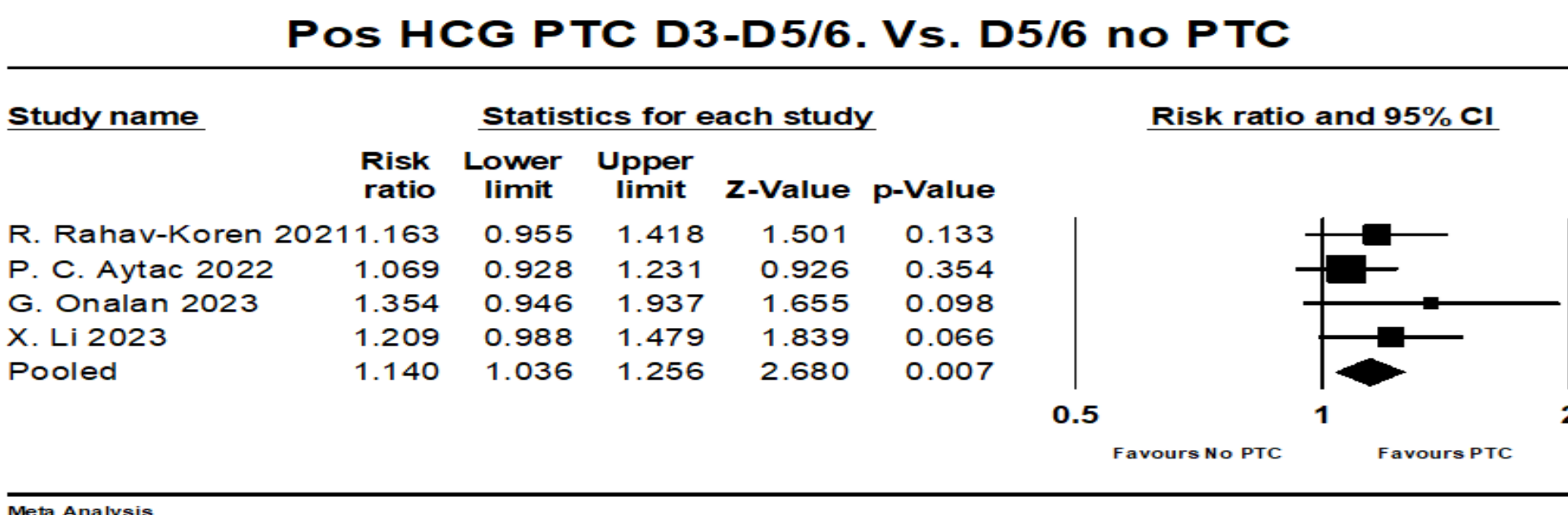
Post thaw culture day 2 ext./D3 Vs. day 2 no PTC



Post thaw culture day 3 to 3 ext. Vs. day 3 no PTC

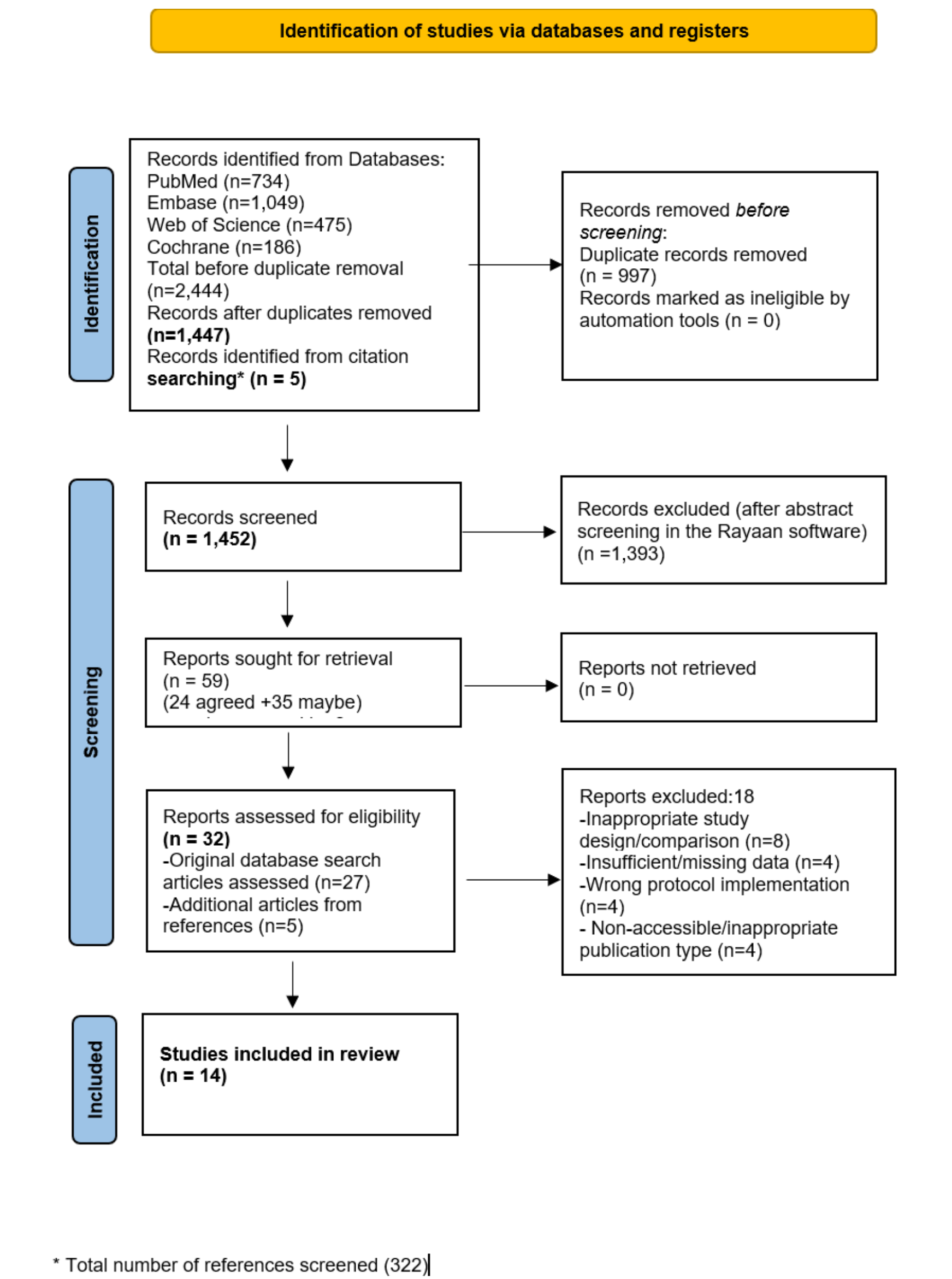


Post thaw culture day 3 to Blast (5/6) Vs. Blast (5/6) no PTC

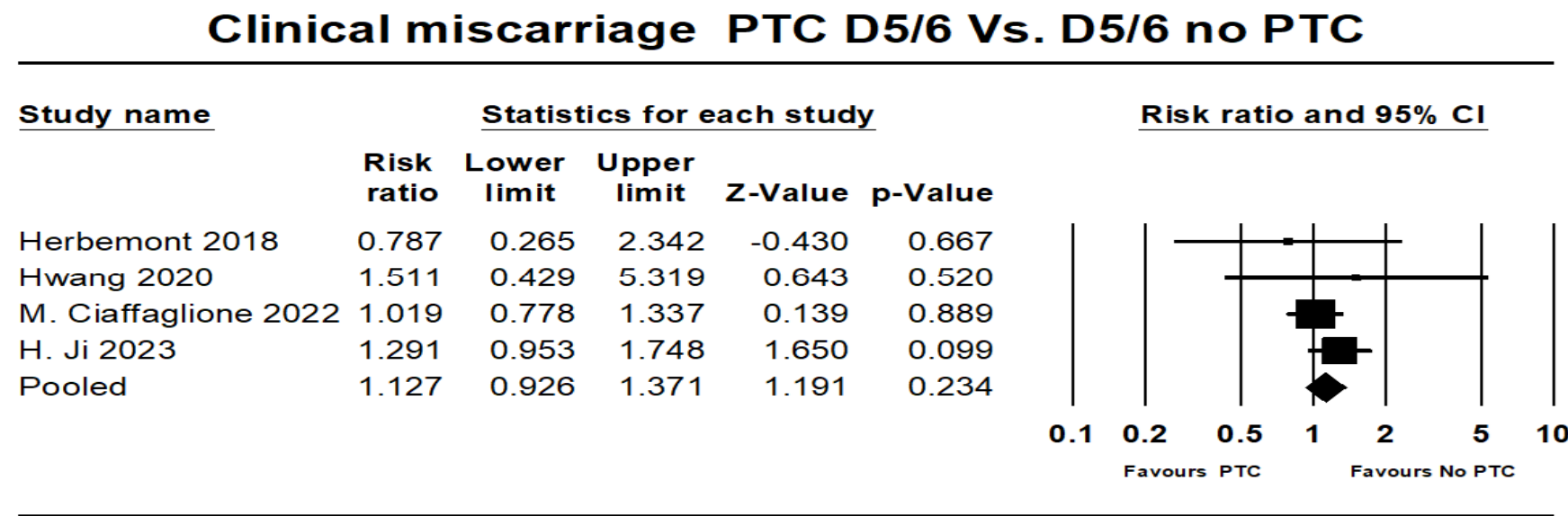
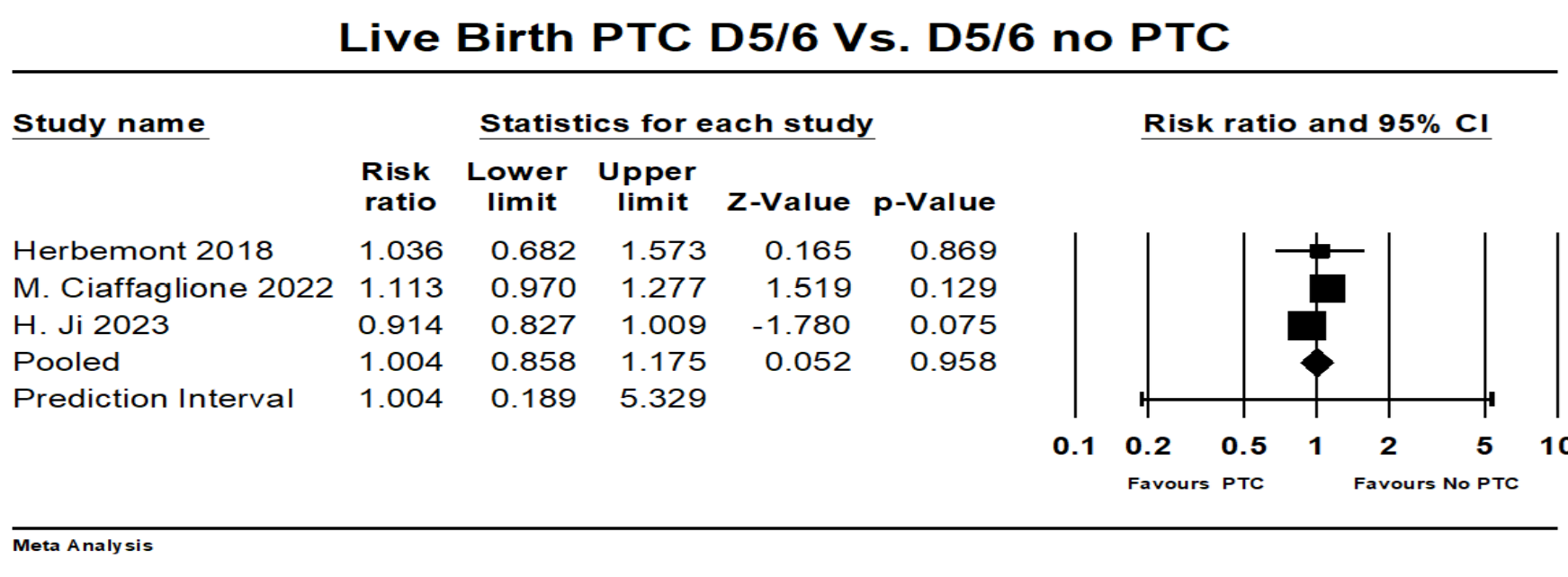
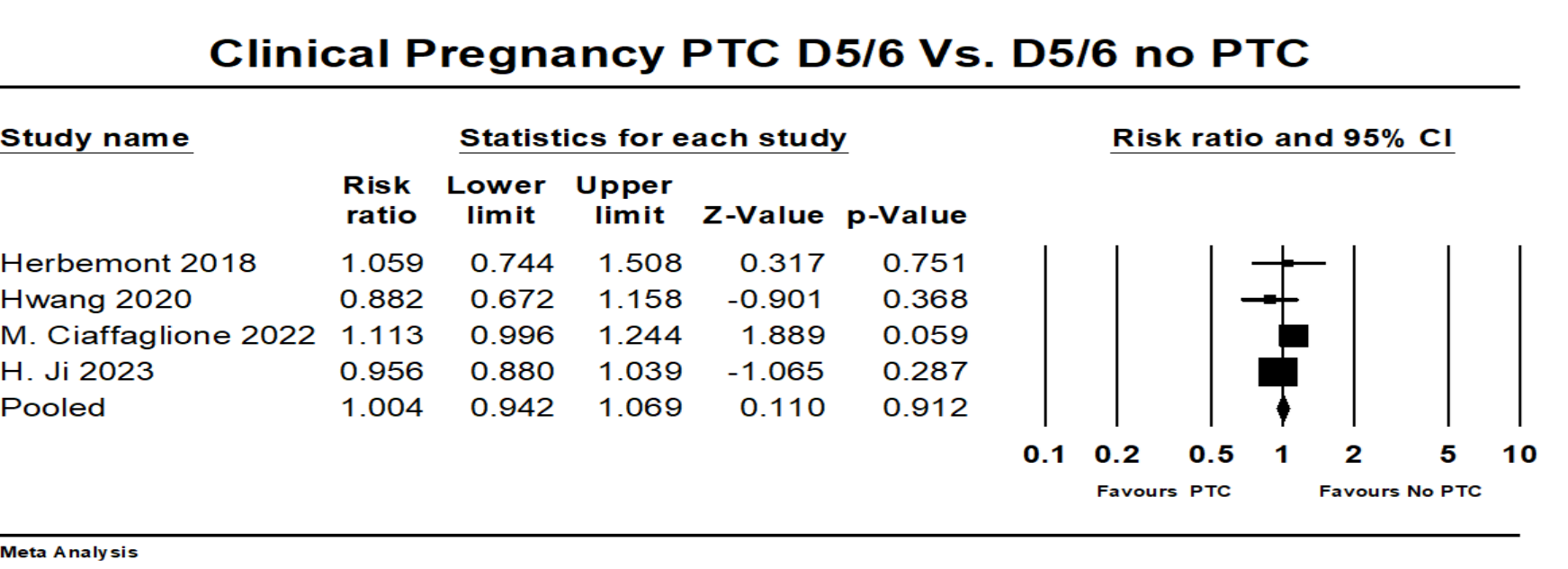
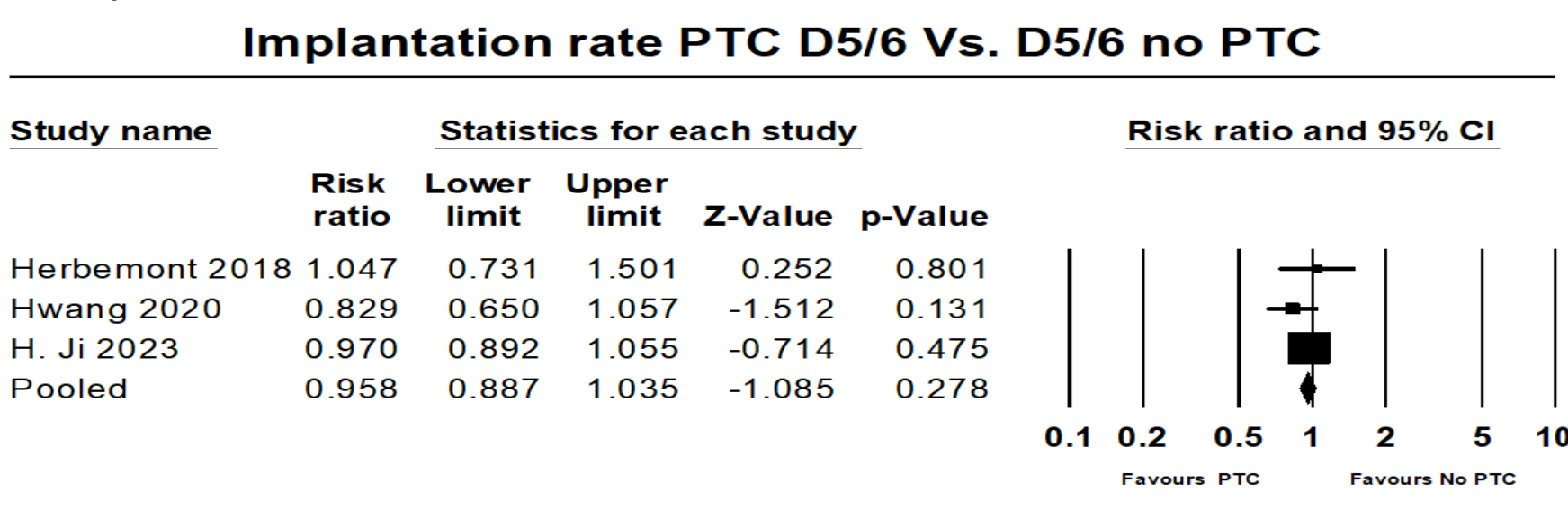
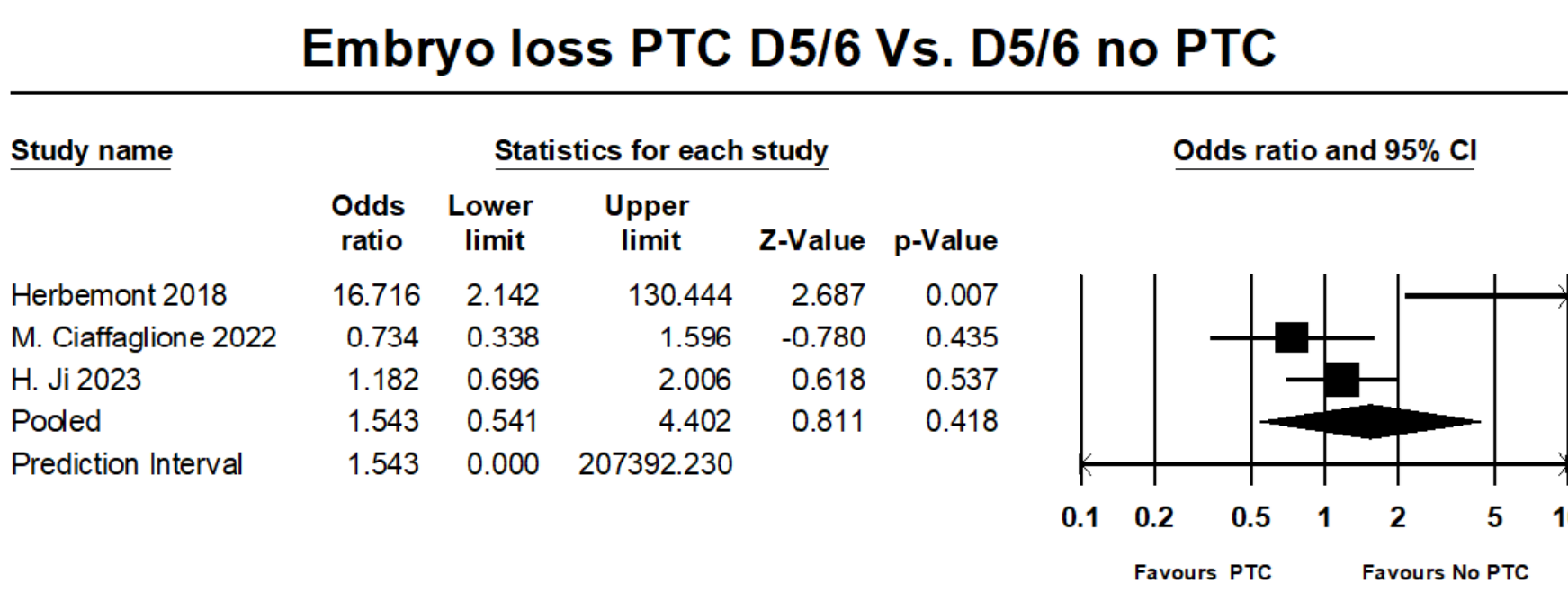


Conclusions

Post-thaw culture strategies should be adapted based on the embryonic stage. While day 2 embryos seem to achieve better outcomes with immediate transfer, day 3 embryos may benefit from extended culture, especially when cultured to the blastocyst stage. In contrast, blastocyst-stage embryos do not show further improvement with extended culture. These results highlight the importance of stage-specific optimization of post-thaw protocols to improve FET success rates.



Post thaw culture day 5/6 to ext. Blast (5/6) Vs. Blast (5/6) no PTC



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