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Title:

ENDOMETRIAL THICKNESS HAS NO IMPACT ON IMPLANTATION RATES OR CLINICAL OUTCOMES IN EUPLOID EMBRYO TRANSFERS

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Objective:

Past attempts to correlate endometrial thickness (EnT) with implantation rates (IR) and pregnancy rates (PR) have been biased due to variability in embryo quality and the unidentified genetic composition at embryo transfer (ET). With the utility of trophoctoderm biopsy (TB) and comprehensive chromosome screening (CCS); a more precise analysis can now be performed. To evaluate our hypothesis that a thicker endometrium is more associated with a desired clinical outcome, we assessed whether EnT impacts implantation rate.

Design:

Retrospective analysis

Materials and Methods:

Patients (n=300) whose embryos underwent TB and CCS using qPCR technology during IVF cycles (n=399) were included. EnT was measured by transvaginal ultrasound (TV) on the day of human chorionic gonadotropin hCG trigger and transabdominally at ET. Cohorts were classified by clinical outcomes (chemical pregnancies (CP), TV confirmation of a gestational sac (GS) and ongoing clinical pregnancies (CLP)). Monozygotic twins were considered as one sac in this analysis. EnT ranged from 4.2 - 17.9 mm (median = 8.6 mm). Logistic regression of the EnT (at hCG trigger and ET) against the ratio of the number of GS to the number of euploid ET, along with CP and OCP was evaluated. Statistical analysis was conducted by chi-square for residual deviance with significance at $p < 0.05$.

Results:

CPs (n=280), GS (n=267) and CLPs (n=225) resulted from 538 euploid ET assessed in the study. EnT detected at day of hCG trigger (n=269) was not correlated with CP ($p=0.85$), GS ($p=0.55$) or CLP ($p=0.72$). EnT at the time of embryo transfer (n=399) was not correlated with CP ($p=0.83$), GS ($p=0.88$) or CLP ($p=0.91$). No statistical difference in implantation rates in patients whose endometria were $>$ or $<$ 7mm was observed. No correlation between increased thickness and implantation rate was experienced.



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Conclusions:

There has been an extensive debate in the literature regarding the effect EnT on IR. Our study displayed EnT, at the time of hCG trigger or at ET, has no significant correlation with IR, CP or CLP of euploid ETs. Our study demonstrated that within the range of thicknesses studied, EnT did not affect a patient's chance of achieving a pregnancy. Additional studies discerning the variability of IR in euploid ET, specifically embryo morphology, hormonal factors and abnormal endometrial pathologies, would enhance our current knowledge base on the optimal conditions for successful embryo implantation.

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