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**Endometrial scratching in women undergoing their first In Vitro Fertilisation (IVF) cycle: results from the UK Multicentre Endometrial Scratch Randomised Controlled Trial**
*M. Metwally1, R. Chatters2, C. Pye1, M. Dimairo2, D. White2, S. Walters2, J. Cohen3, T. Chater2, K. Pemberton2, T. Young2, R. Lomas1, E. Taylor1, S. Laird4, L. Mohiyiddeen5, Y. Cheong6
1Sheffield teaching hospitals, Reproductive medicine, Sheffield, United Kingdom
2The University of Sheffield, Clinical Trials Unit, Sheffield, United Kingdom
3Hull York Medical School, Hull Health Trials Unit, Hull, United Kingdom
4Sheffield Hallam University, Biosciences and Chemistry, Sheffield, United Kingdom
5Manchester University Hospitals, Reproductive Medicine, Manchester, United Kingdom
6The University of Southampton, Reproductive Medicine, Southampton, United Kingdom*
**Study question:**

Does endometrial scratching (ES) in the mid-luteal phase prior to first time IVF/ICSI increase the chances of achieving a clinical pregnancy and live birth?

**Summary answer:**

Endometrial Scratch performed prior to the first cycle of IVF/ICSI does not increase the chances of achieving a pregnancy and live birth.

**What is known already:**

Endometrial Scratch is currently being provided in some fertility units where women are having IVF/ICSI for the first time. The most recent 2019 systematic review shows poor evidence to support this practice. Current studies are single centre, of relatively small size and/or involve heterogeneous or unselected populations. Further evidence is therefore required from a large multi-centre randomised controlled trial looking at a homogenous population of only women undergoing first time treatment and expected to be good responders in order to minimise heterogeneity.

**Study design, size, duration:**

A multicentre, pragmatic, open-label, individually randomised parallel-group trial recruited women at 16 fertility centres across the UK from July 2016 to Oct 2019. We planned to recruit 1044 women (522 per arm) to preserve a power of 90% and 5% two-sided type I error assuming a 30% live birth rate in treatment as usual (TAU), a 10% absolute difference between TAU and Endometrial Scratch (ES) arms (more likely to change practice), and 5% dropout rate.

**Participants/materials, setting, methods:**

Women aged ≥18 and ≤37 undergoing their first IVF cycle, BMI <35 kg/m2 and expected to be good responders were eligible. ES was undertaken in the mid-luteal phase prior to IVF/ICSI. Women were randomised 1:1 to either ES or IVF/ICSI (TAU), using a web-based stratified block randomisation. The primary outcome was live birth (LBR); secondary outcomes included clinical pregnancy (CPR), implantation (IR), ectopic pregnancy (ER), miscarriage (MR), preterm delivery (PDR), stillbirth (SBR) rates and safety.

**Main results and the role of chance:**

1048 women were randomised TAU (n=525) and ES (n=523). Mean age and BMI (standard deviation) was 32.5(3.4) years and 24.5 (3.3) kg/m2. Baseline characteristics were similar between arms.

In the ES arm, 86.6% (453/523) received the ES procedure. IVF/ICSI was received by 94.1% (494/525) in the TAU and 95.0% (497/523) in the ES arm. For the primary outcome, LBR was 37.1% (195/525) in the TAU and 38.4% (201/523) in the ES (Unadjusted: *difference*, 1.3% [95%CI, -4.6% to 7.2%]; *relative risk*, 1.03 [95%CI, 0.89 to 1.21]; *odds ratio*, 1.06 [95%CI, 0.82 to 1.36]; P-value = 0.667).

For the secondary outcomes, CPR was 40.6% (213/525) in TAU and 42.4% (222/523) in ES arm (Unadjusted: *difference*, 1.9% [95%CI, -4.1% to 7.8%]; *relative risk*, 1.05 [95%CI, 0.91 to 1.21]; *odds ratio*, 1.08 [95%CI, 0.84 to 1.38]; P-value = 0.538). All the other secondary outcomes (IR, EPR, MR, MBR, PDR, and SBR) were all similar between arms.

 Adverse events and serious adverse events in women were similar between arms. No deaths or neonatal deaths were reported. Only 1.2% (3/258) of born babies had severe congenital abnormalities reported in the TAU arm only.

**Limitations, reasons for caution:**

The study did not include a sham procedure in the Treatment As Usual arm but this is unlikely to have influenced the study outcomes
Furthermore, the study is applicable to the demographic and ethnic distribution of the population in the UK as no overseas centres were included.

**Wider implications of the findings:**

Endometrial scratch is currently performed for women undergoing first time IVF/ICSI in some centres. This study provides conclusive evidence that  Endometrial Scratch is not beneficial in this population and suggests that it is time to stop this practice.

**Trial registration number:**-
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