

# Use of Endometrial Scratch Injury in the First IVF-ET to Improve Implantation: Is that Justified without Proven Evidence till Date

**Kulvinder Kochar Kaur<sup>1\*</sup>, Allahbadia GN<sup>2</sup> and Singh M<sup>3</sup>**

<sup>1</sup>Kulvinder Kaur Centre for Human Reproduction, India

<sup>2</sup>Rotunda-A Centre for Human Reproduction, India

<sup>3</sup>Consultant Neurologist, Swami Satyanand Hospital, India

**\*Corresponding author:** Dr. Kulvinder Kochar Kaur, Scientific Director, Dr Kulvinder Kaur Centre for Human Reproduction 721, GTB Nagar Jalandhar-144001, Punjab, India, Tel: 91-181-9501358180; Email: kulvinder.dr@gmail.com

## Short Communication

Volume 4 Issue 3

**Received Date:** July 18, 2019

**Published Date:** August 23, 2019

**DOI:** 10.23880/oajg-16000183

## Short Communication

Despite advances in in vitro-fertilization-embryo transfer (IVF-ET), like preimplantation genetic testing (PGT) testing to assess embryo quality clinical results have remained low which varies from 30-40% and 20-30%/per ET or total approximately 50% [1-4]. Implantation needs a complex biological crosstalk between embryo and the endometrium, the mechanisms are still not clear [5,6]. This implantation might fail even after transferring euploid embryos, that lays stress on role of endometrial receptivity for achieving good results of implantation in an IVF cycle [1,2,5,6].

Endometrial Scratch injury (ESI) is intentional damage to the endometrium, aiming to improve endometrial receptivity in women undergoing artificial reproductive technique (ART) [7,8]. This can be done by routinely used biopsy devices namely, pipelle, curette, requiring no analgesia [9]. Initially this was based on hysteroscopy data that disrupting the endometrium improved pregnancy success. Etiologies which have been hypothesized are triggering release of cytokines and growth factors and delaying endometrial maturation to improve receptivity [10]. Over 50 randomized controlled trials (RCT's) have been published in this area.

Earlier Vitagliano, et al. conducted a meta-analysis regarding role of ESI in patients where  $\geq 2$  IVF-ET's had

failed. That time they did not find whether there was increased success with frozen ET's and in those where only 1 fresh transfer had failed [11]. They realized that research was limited regarding use of ESI for all patients, even prior to getting a negative pregnancy result [12]. Since this practice of doing ESI was adopted in clinical care in patients undergoing primary ET, without any bases to support this giving over 8 references for the same. Hence they decided to further their work by raising queries regarding, is performing ESI's beneficial in those having primary ET'S.

Hence they again used meta-analysis to see if ESI worked in every infertility patients at time of 1<sup>st</sup> transfer. On studying primary ESI, the improvement was not found anymore. They included 7 studies that had a total of 1354 participants. In these in 6 studies a soft catheter like pipelle or Wallace was used with ESI done within month before oocyte retrieval and in one study ESI was performed on the day of egg retrieval using a hard catheter. On including all studies the impact was nonsignificant regarding the IVF outcomes. On live birth rate following a subgroup analysis on soft catheter studies nonsignificant effect was seen [relative risk [RR 1.23,95%CI 0.74-2.06,P>0.05), and clinical pregnancy rates (PR;RR,0.98,95%CI0.98-1.25,P<0.05). On the other hand catheter use, that was Novelle curette group showed

a clear negative outcome, mainly a marked reduction in ongoing PR/LBR [RR 0.31, 95%CI 0.14-0.69, P=0.004] and clinical PR's [RR 0.31, 95%CI 0.18-0.71, P=0.003]. In the soft group time of ESI within previous menstrual cycle had no effect on success. They did not examine whether different types of soft catheters differed in success rate. Considering that pipelle catheters are markedly different, it becomes a limitation of the study. Thus ESI did not have any benefit on clinical PR's in 1<sup>st</sup> ET attempt, irrespective of type of catheter used, and whichever type of ET cycle was conducted.

In a meta-analysis there are some problems that are they depend on the kinds of studies available. As pointed on by Vitagliano, et al. [12] they could not control for different factors which are prognostic. One such factor was age, was not controllable and they had to include studies where patients were  $\leq 49$  years. Still they attempted controlling whatever effect of individual studies were by conducted sensitivity analysis by excluding each single study from meta-analysis trying to adjust for the studies along with patients heterogeneity and couldn't find any effect on the result. Further most studies used cleavage embryos. Thus it is not clear whether ESI might have beneficial effect in case of blastocyst transfer. Hence one can't generalize these results for centres that only use blastocyst transfer program.

It is not clear why ESI only improves success in recurrent implantation failure. Possibly that is a population where embryos quality had been already studied and tried to use best ones. No difference in fresh and frozen transfers was seen that was different from 1<sup>st</sup> one where they found benefits only in fresh cycles. Authors pointed to these limitations and suggested larger studies to find answers to these questions.

Thus more studies are required for properly deciphering in which clinical situations ESI might have a place. Further factors that influence success need to be clarified. Right now this study by Vitagliano, et al. does not suggest any role of ETI in first ET. Moreover one should not be attempting ESI at time of oocyte pick up (OPU), considering it might decrease IVF results. Currently more studies are going on of which especially Chatter's, et al. study that has an estimated sample size of 1044 women, probably will further make it clear what is the actual effect of luteal P-ESI using pipelle at their first IVF attempt [13].

## References

1. Maliza BA, Hacker MR, Penzias AC (2009) Cumulative live birth rates after in vitro fertilization. *N Engl J Med* 360(3): 236-243.
2. Toftager M, Bogstad J, Lessl K, Praetorius L, Zeddeler A, et al. (2017) Cumulative live birth rates after one ART cycle including all subsequent frozen-thaw cycles in 1050 women: secondary outcome of an RCT comparing Gn H antagonist protocols. *Hum Reprod* 32(3): 556-567.
3. Vaiarelli A, Cimadomo D, Capalbo A, Orlando G, Spienza F, et al. (2016) Preimplantation Genetic testing in ART: who will benefit and what is the evidence. *J Assist Reprod Genet* 33(10): 1273-1278.
4. Harton GL, Munne S, Surrey M, Grifo J, Kaplan B, et al. (2013) Diminished effect of maternal age on implantation after Preimplantation Genetic diagnosis with array comparative genome hybridization. *Fertil Steril* 100(6): 1695-1703.
5. Diaz Gimeno P, Ruiz Alonso M, Sebastian Leon P, Pellicer A, Valbeuna D (2017) Window of implantation transcriptomic stratification reveals different endometrial sub signatures associated with live birth and biochemical pregnancy. *Fertil Steril* 108(4): 703-710.
6. Simon C, Mureno C, Remohl J, Pellicer A (1998) Molecular interactions between embryo and uterus in adhesion phase human implantation. *Hum Reproduction* 13(S3): 219-232.
7. Vitagliano A, Saccardi C, Noventa M, Spiezo Sarda A, Saccone G, et al. (2018) Effects of chronic endometritis therapy on repeated implantation failure: a systematic review and meta-analysis. *Fertil Steril* 110(1): 113-112.
8. Nastri CO, Lensen SF, Gibreel A, Rain Fenning N, Ferriani RA, et al. (2015) Endometrial injury in women undergoing assisted reproductive techniques. *Cochrane Database Syst Rev* 22(3): CD009517.
9. Lensen S, Sadler L, Farquhar C (2016) Endometrial Scratching for subfertility: everyone's doing it. *Hum Reprod* 31(6): 1241-1244.
10. Vitagliano A, Noventa M, Saccone G, Gazzo S, Vitale SG, et al. (2018) Endometrial Scratch injury before

- intrauterine insemination: is it time to re-evaluate its value? Evidence from a systematic review and meta-analysis. *Fertil Steril* 109(1): 84-96.
11. Vitagliano A, Di Sezio Sardo A, Saccone G, Vitale SG, Sappio F, et al. (2018) Endometrial Scratch injury for women with one or more previously failed embryo transfer: a systematic review and meta-analysis of randomized controlled trials. *Fertil Steril* 110(4): 687-702.
  12. Vitagliano A, Andrisari A, Alviggi C, Vitale SG, Sapia F, et al. (2019) Endometrial Scratching for infertile women undergoing a first embryo transfer women: a systematic review and meta-analysis of published and unpublished data from randomized controlled trials. *Fertil Steril* 111(4): 734-745.
  13. Chatters R (2018) Endometrial Scratch Trial. *ISRCTN23800982, ISRCN*.

