HATCH-ALL TECHNIQUE IMPROVES EMBRYO DEVELOPMENT AND PREGNANCY OUTCOME

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ABSTRACT

The current study tests the hypothesis that performing Laser Assisted Hatching (LAH) in all patients will result in increased usable (transferred and Cryopreserved) blastocyst formation (UBF) and improvement in pregnancy rates (PR) compared to no intervention.

OBJECTIVES

To Determine the impact of LAH of all embryos on blastocyst formation and pregnancy outcome compared to no laser-assisted hatching (NLAH)

METHODS

Outcome of 478 ICSI cycles performed at a private ART center between 2010 and 2016 were reviewed. All patients undergoing ICSI since March 2013 have undergone LAH on day 3 (N=233) with or without PGS (day 5 trophoectoderm biopsy) followed by day 5 or 6 ET. Patients who did not undergo LAH (i.e. from Jan 2010 to March 2013) served as controls (NLAH) (N=245). Usable blastocyst formation (UBF) and PR between the two groups were compared.

RESULTS

Table (1): Comparison between All Laser Assisted Hatching (LAH) and Non Laser Hatching groups (NLAH)

	LAH	NLAH	P
Total number	233	245	
Age (Mean)	35.40 ± 4.14	35.22 ± 4.14	**0.645**
Mean number of retrieved eggs	11.73 ± 5.25	12.20 ± 5.28	**0.334**
Mean number of matured eggs	8.76 ± 4.33	9.05 ± 3.97	**0.454**
Mean number of Fertilized	7.77 ±4.15	7.59 ± 3.72	**0.612**
Mean number of transferred	1.49 ± 0.69	1.92 ± 0.65	**<0.001**
Mean number of cryopreserved embryos	1.75 ± 2.30	1.01 ± 2.66	**0.001**
Mean number of usable embryos	3.11 ± 2.30	2.66 ± 1.76	**0.017**
Total pregnant	**150/222 (67.6%)**	**148/245 (60.4%)**	**0.108**

Cycles with LAH had significantly more UBF and significantly more cryopreserved blastocysts. Although NLAH had a significantly higher number of embryos transferred, there was a higher PR in LAH cycles.

RESULTS

Table (2): Comparison between laser assisted hatching alone without PGS (LAH NO-PGS) and Non laser hatching groups (NLAH)

	LAH-NO PGS	NLAH	P
Total number	167	245	
Age (Mean)	35.09 ± 4.37	35.22 ± 4.14	**0.761**
Mean number of retrieved eggs	11.92 ± 5.43	12.20 ± 5.28	**0.604**
Mean number of matured eggs	8.80 ± 4.52	9.05 ± 3.97	**0.575**
Mean number of Fertilized	7.77 ±4.32	7.59 ± 3.72	**0.659**
Mean number of transferred	1.59 ± 0.69	1.92 ± 0.65	**<0.001**
Mean number of cryopreserved embryos	2.15 ± 2.50	1.01 ± 2.66	**<0.001**
Mean number of usable embryos	3.11 ± 2.40	2.66 ± 1.76	**< 0.001**
Total pregnant	**110/165 (66.7%)**	**148/245 (60.4%)**	**0.198**

There were significantly more UBF and more cryopreserved blastocyst in LAH-NO PGS vs NLAH. Cycles with LAH-NO PGS had higher PR vs NLAH despite a higher number of ET in group NLAH

CONCLUSIONS

Embryos subjected to laser assisted hatching were more likely to form usable blastocysts than embryos without LAH. Blastocysts developing after LAH are more likely to be higher quality and could potentially result in improved clinical outcomes.