

The Purpose of Laser-Assisted Hatching (LAH) in Assisted Reproduction

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DESCRIPTION

Laser Assisted Hatching is excellent and successful approach as compared to other assisted hatching ways. The success rate of this approach basically depends upon the age of a patient, infertility expert or Embryologist experience, and laboratory quality. Therefore, this procedure should be performed by certified infertility expert or Embryologist in state of the Assisted Reproduction Technology (ART) laboratory. Assisted-Laser Hatching is an advanced form of *In Vitro* Fertilization IVF treatment which can be beneficent in certain subset of couples enduring IVF. This procedure is done just previous to the embryo transfer.

As the name implies the treatment involves the use of laser to drill a hole in the external protective shell of the embryo (called the zona pellucida). Drilling the hole weakens the zona and facilitates the embryo implantation, thereby enhancing the success rates after IVF Treatment. Prior to laser, certain chemical and mechanical means of assisted hatching were used. But the use of laser allows the discarding of zona with exact preciseness. Also, Laser-Assisted Hatching requires less handling of the embryo than these other assisted hatching styles. Also, laser-supported hatching is faster than the other approaches and, thus, the embryo spends lower time outside the incubator. Assisted hatching increases the chances of the embryo successfully implanting and is constantly a part of *In Vitro* Fertilization (IVF).

Many methodologies of assisted hatching are mechanical, chemical (acid tyrode), enzyme (pronase) and laser. The IVF specialists use a strong light beam on day 3rd after certification has takes place during an IVF or ICSI cycle. This light ray helps in creating a gap in the shell through which the embryo comes out. It takes only a countable seconds and doesn't harm the embryo. The embryo is further transferred back into the patient's uterus to attach itself to the lining and continue growing. The treatment helps break out of the embryo shell to facilitate implantation to the uterine lining, and rays are the fastest and safest system of performing assisted hatching. The ray makes small holes in the zona pellucida in one or two seconds.

Laser hatching is safe and simple approach often performed by using acidic medium. It increases the chances of implantation during IVF to the women who may have embryos with a thick or irregular zona pellucida or declined ovarian reserve, women with poor quality embryos as assessed by the IVF lab, women experiencing frozen embryo transfer cycles, women who have endured prior implantation failures. The accurateness of the laser hatching is often pre-determined, hence making this procedure actually appropriate to be used.

In order to implement the Laser-Assisted Hatching (LAH) technique, five basic parameters should be met:

- A thick or hard transparent belt of the embryo.
- Transfer of cryopreserved embryos.
- Multiple ineffective attempts for Fertilization.
- The age of the patient (over 40 years of age).
- A high quantity of the Follicle Stimulating Hormone (FSH) and Anti-Mullerian Hormone (AMH) hormone.

Laser-Assisted Hatching (LAH) isn't presently recommended for routine use in all *In Vitro* Fertilization patients. Factors that should be considered when determining Laser-Assisted Hatching training include age, hormonal status, embryo quality, number of *In Vitro* Fertilization attempts, and whether frozen embryos are being implanted.

- Age: LAH is only recommended to the women over 37 ages old.
- Hormonal Status: Women with an elevated baseline amount of Follicle Stimulating Hormone.
- Embryo Quality: Women with poor prognosis embryos, including conditions similar as a thick zona pellucida, slow cell division rate, or high-cell fragmentation.
- Fertilization attempts: Women who have failed 1 or further Fertilization cycles.
- Frozen Embryos: Women using either day 3 or blastocyst frozen/thawed embryos, which may have a hardened zona pellucida as a result of the freezing process.

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