Al collegio docenti del Dottorato in Medicina Molecolare

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Introduction:

One of the most important goals of reproductive medicine is to obtain good quality embryos to aid infertile couples to get healthy babies. Embryo quality is influenced by the intrinsic quality not only of the oocyte, but also of the spermatozoa. In fact, 30-50% of infertile couples show a male cause, which negatively affect the reproductive outcome. A multitude of causes and risk factors contribute to the increasing incidence of male infertility ranging from genetic mutations to lifestyle choices to medical illnesses or medications. One important factor affecting fertility potential and ART outcomes is sperm DNA integrity. High Sperm DNA Fragmentation (SDF) levels have detrimental consequences in normal fertilization, embryo development, successful implantation and pregnancy following Assisted Reproductive Technology (ART). Conventional sperm selection methods based on motility and morphology can fail to select sperm with absent or low DNA fragmentation levels. Magnetic-activated cell sorting (MACS) protocol aims to optimize this selection process before ICSI, providing a new possibility to improve ART outcomes.

Methods:

- Semen sample collection.
- Seminal parameters analysis.
- Sperm DNA fragmentation analysis with Halo Test®.
- Sperm selection through conventional sperm processing techniques and MACS.
- Collection of data from patients and ART cycle.

Results:

During the second year of my PhD, the role of magnetic activated cell sorting (MACS) technique in subjects affected by sperm DNA fragmentation (SDF) was investigated. Moreover, its putative beneficial effects on semen and ICSI cycles outcomes was valuated, collecting retrospective and prospective data of homologous fresh cycles and oocyte donation cycles where MACS-selected spermatozoa were used.

Docenza:

Master in ‘’Biotecnologie mediche e biologia della riproduzione umana – UNISI – 2023/2024 – Tecniche di fecondazione assistita di I livello.