EQUIPO JUANA CRESPO

FutureFertility

ARTIFICIAL INTELLIGENCE (AI)-SUPPORTED MAGENTA OOCYTE ASSESSMENTS SHOWN TO PROSPECTIVELY CORRELATE WITH UTILIZABLE BLASTOCYST DEVELOPMENT IN PATIENTS, AND FOR THE FIRST TIME IN OOCYTE DONORS

J. Pons Ballester[1], M. Alaves[1], J. Crespo[1], J. Fjeldstad[2], N. Mercuri[2], A. Krivoi[2], J. Teruel[1]

[1] Equipo Juana Crespo, IVF Laboratory, Valencia, Spain. [2] Future Fertility, Clinical Embryology and Scientific Operations, Toronto, Canada

STUDY QUESTION

Oocyte donation aims to provide higher quality oocytes to increase the chances of success for recipients. However, not all oocytes from even a young donor will be of the same quality or have the same chances of reproductive success. MAGENTA is a non-invasive oocyte AI image analysis tool that provides an assessment of oocyte quality through a score on a scale of 0-10 that correlates with blastocyst development, and its quality.

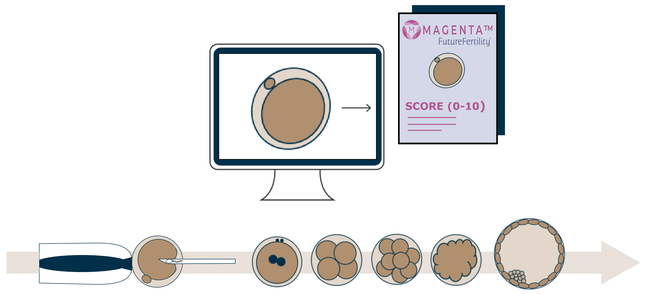
Can MAGENTA, an AI oocyte assessment tool, prospectively assess the quality of oocytes retrieved from patients and donors as it relates to reproductive outcomes?

STUDY DESIGN, MATERIAL AND METHODS

A prospective study was conducted from April-November 2022 by Equipo Juana Crespo using MAGENTA to assess the oocyte quality.

126 subjects
68 patients
59 donors

1,313 fresh MII oocytes
612 patient oocytes
701 donor oocytes



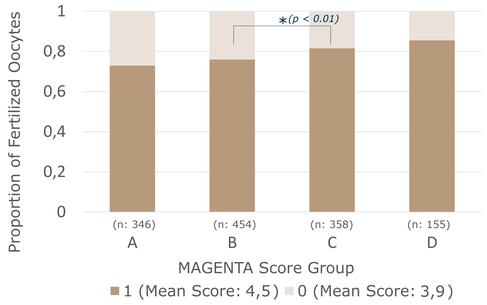
Prior to ICSI, a non-invasive light microscopic image was taken of denuded MII oocytes utilizing specialized image capture software. Images were uploaded and analyzed by MAGENTA to provide a score . Reproductive outcomes regarding each mature oocyte were collected over the fertility cycle. A utilizable blastocyst was considered a Gardner grade of 2CC or greater.

RESULTS

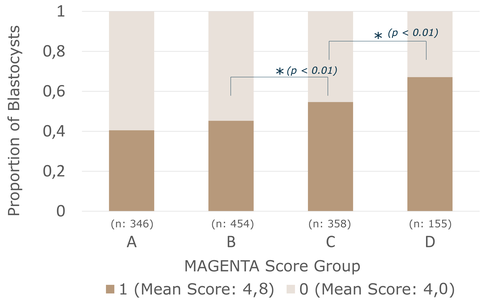
The MAGENTA scale was divided into 4 groups: A (0-2.5), B (2.6-5), C (5.1-7.5), D (7.6-10).

There was an overall increasing proportion of oocytes that are successfully fertilized and developed into not only blastocysts, but also into utilizable blastocysts, from the lowest to highest MAGENTA score groups with significant differences in patients and donor MII oocytes.

Proportion of Fertilized Oocytees within MAGENTA Score Groups of Entire Dataset

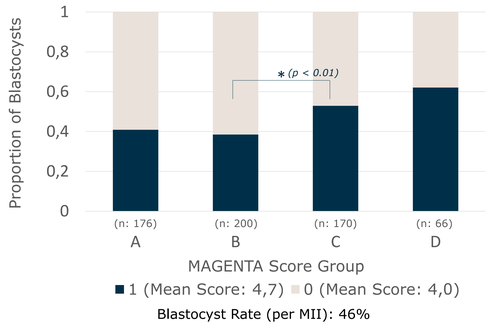


Proportion of Blastocysts per MII within MAGENTA Score Groups of Entire Dataset



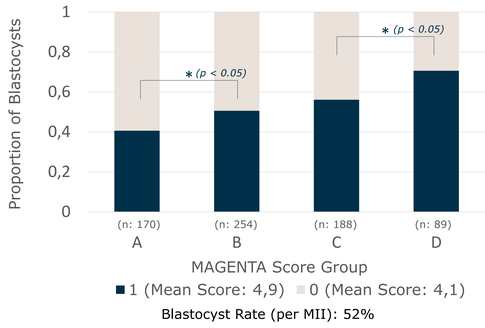
Proportion of Blastocysts per MII within MAGENTA Score Groups per MII origin

Patient MII oocytes



Blastocyst Rate (per MII): 46%

Donor MII oocytes



Blastocyst Rate (per MII): 52%

CONCLUSION

MAGENTA is a valuable tool for oocyte quality assessments correlating with utilizable blastocyst development amongst both autologous and donated oocytes. Although young donors are assumed to have high quality oocytes, this is not always true. MAGENTA assessments for donor oocytes could be essential to provide insights when these cycles unexpectedly fail