The likelihood of biochemical, clinical pregnancy and live birth, and the risk of multiple pregnancy, after SET and DET of embryos of different scores was analyzed. A logistic regression analysis adjusted by age of the woman was ran for each outcome.

Main results and the role of chance: The distribution of ETs among the 9 groups for SET was: 510 H, 715 M, 346 L; for DET: 142 HH, 148 HM, 29 HL, 268 MM, 164 ML, 148 LL. Mean woman age was similar among groups: 38.7±4.01. Live birth and twin rates increased with embryo score. Considering a SET of category M as reference, the OR of live birth in DET were: 2.76 [1.82, 4.19 95%CI] for HH, and 2.32 [1.51, 3.55 95%CI] for HM, and 1.69 [1.19, 2.40 95%CI] for MM, and in SET: 1.52 [1.12, 2.04 95%CI] for H. Considering a DET of category MM as reference, the OR of twin birth in DET were: 2.8 [1.14, 6.99 95%CI] for HH, 2.5 [0.98, 6.46 95%CI] for HM, and 0.92 [0.11, 7.84 95%CI] for HL. According to this model, a 38y.o. woman with a SET of category M would have a 16% chance of live birth, and no twins. The addition of an M (DET: MM) increases her chance of live birth to 24% with a 2.9% risk of twins. The addition of a H (DET:MH) would increase further her chance of live birth to 30.8%, however, the increase would be due almost exclusively to twins (7%).

Limitations, reasons for caution: The limitations of this study are its retrospective nature and the small size of some categories. Embryos were classified using a national morphological scale; other morphological classifications could influence the results. The development and validation of site-specific models, using local patients' data, is recommended before their use in clinical practice.

Wider implications of the findings: A personalized assessment of embryo quality and woman age, at a minimum, are necessary to identify the best ET strategy for each patient; this strategy allows to maximize live birth rates while keeping the risk of twin birth as low as possibl.

Trial registration number: not applicable

P-668 We aim for one baby, not one embryo: a personalized ET strategy based on embryo score and woman age maximizes LB and minimizes twins

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Study question: Is it possible to define a personalized ET model to maximize the chance of live birth (LB) while minimizing the risk of twin pregnancy?

Summary answer: A model including age and embryo morphological score can inform a personalized ET strategy to maximize LB while minimizing the risk of twin pregnancy.

What is known already: The morphological score of the transferred embryos affects pregnancy (PR) and LB rates in IVF cycles. Although SET is mainly recommended to avoid multiple pregnancies, DET is still being performed extensively, especially in patients with poor prognosis, with the aim to improve PR per transfer and shorten time to pregnancy. While twin pregnancies are associated with an increased risk of maternal and fetal complications, very low PR may increase patient drop-off, extend time to pregnancy, and increase the cost per successful transfer. A personalized transfer strategy balancing high LB per transfer with low twin pregnancy rates should be defined.

Study design, size, duration: Retrospective study including 2,470 fresh and frozen embryo transfers (ET) of either one or two embryos at D3 from January 2016 to August 2019 in a single IVF clinic. Biochemical, clinical, multiple pregnancy and live birth rates after SET and DET were analyzed according to the morphological score of the embryos transferred. ETs were divided into 9 groups according to the combinations of their embryo morphological scores.

Participants/materials, setting, methods: Embryos were assessed on D3 following a national recommended morphological scale. Morphology was categorized as High (H) if A or B+, medium (M) if B or C+, and Low (L) if C or D.