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WHAT IS KNOWN ALREADY

Although morphological evaluation has been the main strategy applied in order to select embryos for transfer, it has been shown that even aneuploid embryos are able to reach high morphological scores and vice versa. In an effort to promote singleton gestation and reduce the number of multiple pregnancies, guidelines for the limits on the number of embryos to be transferred in IVF cycles have been published. Recommendations strict the number of embryos transferred considering patients age and treatment prognosis. Information concerning the developmental stage is also provided, however, less is known about the quality of transferred embryos.

OBJECTIVE

To investigate if the addition of an extra low-quality embryo to a high-quality embryo transfer is ever worth it.

DESIGNE

1249 patients undergoing intracytoplasmic sperm injection (ICSI) cycles between 2016 and 2018

For all cycles one or two embryos were transferred on day five

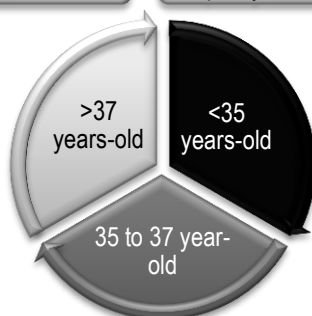
Embryo morphology was assessed 16–18h post-ICSI and on the mornings of days two, three, and five of embryo development

Embryos classified as top- or low-quality embryos

Cycles split into groups depending on the number and quality of transferred embryos

Group Top-Quality (n=871),
A single top-quality embryo transferred

Group Mixed-Quality (n=378),
One top-quality and one low-quality embryo transferred



The impact of the transfer of extra low-quality embryos on singleton and multiple pregnancies rates, in different female age ranges was investigated by general mixed models.

RESULTS

Pregnancy and multiple pregnancy rates according to the quality of the transferred embryos

	Clinical outcomes	Groups		P
Age groups		Top Quality	Mixed Quality	
<35 years-old	Pregnancy (%)	33.5	44.6	0.003
	Multiple pregnancy (%)	0	41.3	<0.001
35 to 37 year-old	Pregnancy (%)	27.9	36.9	0.027
	Multiple pregnancy (%)	0	29.4	<0.001
>37 years-old	Pregnancy (%)	24.1	25.4	0.041
	Multiple pregnancy (%)	0	21.1	<0.001

Miscarriage rate didn't differ among the groups

The increment of one low-quality embryo for embryo transfer



- Increases the odds of multiple pregnancies in 37% for patients <35 years-old (OR: 0.631, CI: 0.487 - 0.817, p<0.001)
- Increases the odds of multiple pregnancies in 44% for patients: 35 - 37 years-old (OR: 0.563, CI: 0.340 - 0.932, p=0.026)

CONCLUSION

The transfer of an extra low-quality embryo is worth it for patients >37 years-old. For younger women, this dramatically increases the risk of multiple pregnancies.

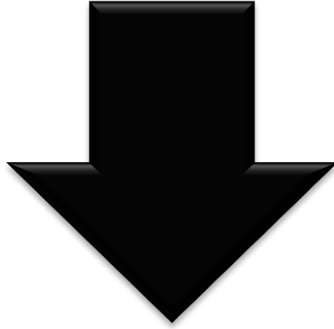
IMPLICATIONS

The addition of an extra low-quality embryo may increase the pregnancy rate and be valuable for older patients, in which the pregnancy chance is lower. However, for younger patients, this results in increased multiple pregnancy chance, raising the question on whether taking on this level of risk is worth it.

The increment of one low-quality embryo



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The increment of one low-quality embryo for embryo transfer



- Increases the odds of multiple pregnancies in 37% for patients <35 years-old (OR: 0.631, CI: 0.487 - 0.817, $p < 0.001$)
- Increases the odds of multiple pregnancies in 44% for patients: 35 - 37 years-old (OR: 0.563, CI: 0.340 - 0.932, $p = 0.026$)