

DOES CLUBBING POOR-QUALITY AND TOP-QUALITY EMBRYOS AFFECT IVF SUCCESS? A SINGLE-CENTRE RETROSPECTIVE ANALYSIS

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Embryologists often “club” poor-quality embryos with high-quality ones to increase the number of embryos transferred or frozen when only a limited number of top-grade embryos are available. However, experimental evidence suggests that compromised embryos may secrete toxic metabolites, increase oxidative stress, or alter paracrine signaling, potentially impairing neighboring embryo development. This study evaluates whether clubbing poor-quality embryos with top-quality embryos influences laboratory and clinical outcomes.

This retrospective study was conducted at the Institute of Reproductive Medicine, Kolkata. Laboratory outcomes (embryo fragmentation and blastocyst formation) were reviewed over a three-year tenure in which embryos were cultured either alone or with deliberate clubbing. Clinical outcomes (implantation rate and clinical pregnancy rate) were analyzed over a subsequent four-year tenure comparing transfers and vitrification cycles where top-quality embryos were handled individually versus in combination with poor-quality embryos. Embryo morphology was assessed using standard grading criteria.

Group culture analysis demonstrated that when poor-quality embryos were clubbed with top-quality embryos, there was significantly greater fragmentation and a markedly reduced blastocyst formation rate ($p < 0.0001$). In clinical practice, cycles where clubbing was performed showed lower implantation and less favorable pregnancy trends as compared to cycles in which high-quality embryos were cultured and transferred separately. Overall, the presence of poor-quality embryos consistently appeared to compromise developmental potential.

Findings from both laboratory and clinical data suggest that routinely culturing poor-quality embryos together with high-quality ones may be detrimental, possibly due to toxic metabolic by-products or altered paracrine signaling from compromised embryos. Whenever feasible, top-quality embryos should be cultured, transferred, and cryopreserved individually. Clubbing may be considered only for poor-quality embryos to allow the possibility of developing usable blastocysts, which, though less likely, could still contribute to improving overall success rates.