Simplifying IVF for developing countries

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Introduction: Infertility care is probably the most neglected health care issue in developing countries, affecting more than 180 million couples. Bilateral tubal occlusion due to sexually transmitted diseases and pregnancy-related infections is the most common cause of infertility. Consequently most cases of infertility are only treatable by using IVF which is either unavailable or too costly.

Objective: we aimed to develop a simplified IVF laboratory procedure without loss of quality.

Methods: A pilot study was performed using a highly simplified laboratory method for IVF developed. This system reproducibly generates de novo an atmosphere and culture condition in a common glass tube that are consistent with normal human fertilization and preimplantation embryogenesis without the need for (i) medical grade gasses or (ii) complex, microprocessor controlled tissue culture incubators. Development from insemination through preimplantation stages occurs in a completely closed system. Outcomes from the simplified culture system (SCS) were compared with those from a regular IVF culture system (RCS) in patients < 36 years old in their first IVF attempt. In all cases single embryo transfer was performed.

Results: An interim analysis showed similar rates of fertilisation and embryo cleavage in both groups. In the SCS group the implantation rate per embryo was 34.8% (8/23), with an ongoing pregnancy rate of 30.4% (7/23). Up to July 2013, 14 healthy babies are born.

Conclusion: Our initial results are proof of principle that a simplified culture system specifically designed for developing countries can offer affordable and successful opportunities for infertility treatment where IVF is the only solution.