In Vitro Fertilization and Embryo Replacement at the Department of Obstetrics and Gynecology, University of Kiel, F.R.G.

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From July 1982 until September 1983, 194 pelviscopies were performed in Kiel (phase I). The patients were stimulated either with Clomid/human menopausal gonadotropin (hMG)/human chorionic gonadotropin (hCG) or with Clomid/hCG or hMG/hCG alone. Follicular maturation was monitored by ultrasonography and the daily measured E2 and luteinizing hormone (LH) response. Surgical therapeutic pelviscopy with follicular puncture followed 36 hr after hCG application. Oocytes were incubated in either Ham's F-10 or Menezo B2 medium in an automatically gas-controlled exsiccator. Forty-eight hours after insemination normal-looking four- to eight-cell embryos were replaced into the uterine cavity. Oocytes were successfully collected in 87.4% of the patients, with an average of 2.2 oocytes per patient. Eighteen pregnancies resulted of 101 embryo replacements. The overall pregnancy rate was 16.2% per replacement and 9.3% per pelviscopy. Undivided oocytes and polyploid embryos were analyzed cytogenetically. From October 1983 to October 1984 the overall pregnancy rate after 144 pelviscopies and 88 embryo replacements (phase II) improved to 23.9% per replacement and 14.6% per pelviscopy.

KEY WORDS: in vitro fertilization (IVF); embryo replacement; cytogenetics, polyploidy.

INTRODUCTION

For the German Society of Fertility and Sterility we organized in 1976, together with the German Society of Veterinary Medicine, a symposium on “Comparison of human and animal in vitro fertilization and embryo replacement” (1). At that time, we tested in our group an in vitro fertilization system established in mice and looked at the influence of spermatozoal antibodies on in vivo and in vitro fertilization. Furthermore, we compared implantation rates after in vivo and in vitro fertilization, studied the influence of polyclonal and monoclonal spermantibodies on in vitro fertilization, and looked at the chromosome pattern of mouse eggs and early embryos (2-4).

Since 1978 we occasionally studied human eggs and performed in vitro fertilization (IVF) in our so-called preliminary phase of the human IVF and embryo replacement program (5,6). Until June 1982 many of the necessary arrangements for a well-functioning human IVF and embryo replacement program were not yet available at our service: hormonal data by radioimmunoassay with at least daily output, qualified ultrasound determinations of follicular growth, observations of the patients in Kiel a few days prior to the scheduled follicular puncture, control spermiograms of husbands according to the necessary criteria, and integration of the operative laparoscopy for follicular puncture into the activities of a large university service of obstetrics and gynecology. At this time, only patients with requests for tubal repair were timed. The operative laparoscopy was always performed in combination with chromosalpingoscopy.

Our data till 1981 on patients in spontaneous cycles or after clomiphene/human chorionic gonadotropin (hCG) stimulation are summarized in the book of the first Bourn Hall meeting (7).

It is the aim of this paper to report on our in vitro
Fig. 1. In vitro fertilization and embryo replacement at the Department of Obstetrics and Gynecology, University of Kiel, Federal Republic of Germany.

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