Role of endometriosis on oocyte quality and fertility outcome- an evidence based review

S. Gupta, G. K. Mansour, A. K. Upadhyay, R. K. Sharma, A. Agarwal; Cleveland Clinic Foundation, Cleveland, OH

Objective: To conduct a comprehensive review of the literature and analyze the existing literature on endometriosis and its impact on oocyte quality and fertility outcome.

Design: Systematic review of literature

Materials and Methods: Comprehensive literature review was performed through Medline search by reviewing all published reports (from 1988 to 2005), Ovid database (from 1996-2005) and abstracts from ASRM 2003, 2004. The key search words were endometriosis, oocyte, quality, implantation, oxidative stress and female infertility.

Results: We reviewed 17 studies and 2 meta-analyses. Detrimental effects of endometriosis on ovarian and uterine function are compelling. The main findings of our review are: 1) impaired follicular microenvironment leads to poor oocyte, embryo quality and impaired implantation, 2) lower implantation capacity attributed to poor quality embryos or altered receptivity of the endometrium is seen in endometriosis patients, 3) a lack of consensus on the effect of stage or severity of disease on in-vitro fertilization (IVF) outcomes. Half of the studies reviewed by us showed a negative association between the endometriosis and a) oocyte quality, b) fertilization, c) cleavage rates, d) embryo quality, e) pregnancy and f) miscarriage rates. 4) significant increase in the percentage of arrested embryos and decrease in the number of blastomeres were reported after 72 hours, 5) the anatomic site, severity and type of lesions in endometriosis patients may influence the assisted reproduction outcome, 6) reduced response to ovarian hyperstimulation and reduced cleavage potential in endometriosis patients reflect poor oocyte quality, 7) oocytes from patients without endometriosis donated to women with endometriosis showed higher pregnancy rate per transfer. Results of meta-analysis in women with endometriosis showed: 1) significantly lower odds ratios for fertilization, implantation rates and peak estradiol concentrations, 2) significantly fewer oocytes retrieved and 3) lower pregnancy and implantation rates. Conclusion: Lack of consensus amongst the various published studies. In addition, there is a large variability in the patient groups, differences in etiologies of infertility, varying IVF outcomes studied, lack of stringent inclusion criteria and other compounding factors that influences the IVF outcomes in endometriosis patients. Randomized controlled trials with similar groups of patient and IVF outcomes and with stringent inclusion criteria are necessary to assess the
impact of endometriosis on oocyte quality. Support: None

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