

Cumulus cell apoptosis changes with exposure to spermatozoa and pathologies involved in infertility

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Objective: To determine whether the incidence of apoptosis in mature oocyte cumulus cells changes after insemination related to infertility. **Design:** Prospective study. **Setting:** Public hospital and university. **Patient(s):** One hundred women undergoing in vitro fertilization and embryo transfer (IVF-ET). **Intervention(s):** Collection of cumulus cells from IVF-ET cycles with different infertility etiologies. **Main Outcome Measure(s):** Detection of apoptosis in cumulus cells; fertilization, embryo quality, and pregnancy rate. **Result(s):** The incubation of cumulus-oocyte-complexes with spermatozoa led to an increase in cumulus cell apoptosis from 34.2 ± 3.7 to $44.5 \pm 6.3\%$. After insemination, cumulus cells of poor quality embryos showed a statistically higher apoptotic rate versus cumulus cells of good quality embryos (61.5 ± 6.4 vs. $40.6 \pm 3.9\%$). Cumulus cells arising from oocytes with $\geq 50\%$ fertilization rates after insemination showed higher apoptosis rates did cumulus cells from oocytes with $<$