Fertilization rate and pregnancy outcome of oocytes with smooth endoplasmic reticulum (SER) aggregates

Aim:
To compare if the presence of smooth endoplasmic reticulum aggregates in oocytes affect fertilization rate and pregnancy outcome of mature MII oocytes.

Materials and Methods:
58 female patients aged 26 to 42 years old who underwent IVF cycles from January 2013 to December 2013 in our IVF centre were included in the study. The inclusion criteria of this retrospective study is the presence of at least 1 oocyte with smooth endoplasmic reticulum (SER) aggregates. The patients were either on natural cycle, short, long or antagonist cycles.

Results:
Of the 58 patients, a total of 758 oocytes were collected and 91 oocytes were found to have SER aggregates. The fertilization rate of oocytes with SER aggregates was 67% (61/91). The pregnancy rate was 13.8% (8/58) when a mixture of embryos with SER aggregates and without aggregates were transferred. One patient had a missed abortion, while 4 out of the remaining 7 patients had both the embryos implanted. The implantation rate for this pregnant group with SER aggregates is 78.6% (11/14). Most oocytes with SER aggregates were found in patients who were on the hormone, Cetrotide (34/58=58.6%). To date, 4 babies were delivered and pregnancies for the other 5 patients are still on-going.

Conclusions:
Oocytes with SER aggregates can be injected as good fertilization can be achieved by either avoiding the SER aggregates during ICSI or breaking the SER membrane and depositing the sperm inside the SER aggregates. Although the pregnancy rate is low, oocytes with SER aggregates should be considered for embryo transfer as they are able to implant and result in live births.