

KILLER IMMUNOGLOBULIN-LIKE RECEPTORS AND HUMAN LEUCOCYTE ANTIGENS C GENOTYPE IS RELATED TO REPRODUCTIVE SUCCESS OF IN VITRO FERTILIZATION WITH DONOR OOCYTES.

de la Fuente Hernandez, L.Alfonso; Rodriguez Frias, Edgard Alfonso; Serrano Garcia, Ines; Ortiz Piñate, Nereida; Garcia Cano, Sara; Gonzalez Casbas, Jose Manuel; Alonso Arribas, Maria; Salas Rojas, Rocio; Roig Navarro, Julia; Rey Perez de Pipaon, Mireia; Fernandez Arquero, Miguel; Sanchez Ramon, Silvia

Abstract Body

Uterine Natural Killer cells (uNK) are crucial for adequate placentation and fetal development. Maternal KIR A haplotype has been related to poor pregnancy outcomes directly influenced by dose of embryo HLA-C2, but also carriers of KIR B haplotype and HLA-C1/C1 embryos, can be at elevated risk of pregnancy loss. Because KIR-B haplotype is a more heterogeneous group of inhibitory and activating KIR, study of specific KIR and its relation to pregnancy outcomes can be of special interest.

Thirty consecutive women, between September 2016 and October 2017, assigned to IVF with donor oocyte according to standard clinical criteria resulting in 30 fresh embryo transfers, in Instituto Europeo de Fertilidad, were included. HLA-C and KIR genotype of receptors and HLA-C of male partner and oocyte donors were identified.

Twenty three percent (7/30) and 77% (23/30) of receptors were assigned to A or B haplotypes according to the WHO, Human Genome Organization Subcommittee on KIR Nomenclature, respectively. Two out to seven (28%) of haplotype A carriers and 12/23 (52%) of haplotype B carriers had biochemical pregnancies (not statistically significant). Only one ongoing pregnancy (14%) resulted in a 34weeks live birth (obtained from single embryo transfer) on haplotype A carriers contrasting to 5/23 (21%) ongoing pregnancies in haplotype B carriers (not statistically significant). Frequencies and OR for all KIR were calculated for different outcomes of IVF. On haplotype B carriers, only the presence of KIR2DL3, identified in 44% (2/5) of ongoing pregnancies compared to 88% (16/18) of non-pregnant women, was associated with poor IVF outcome ($p=0,048$; CI: 0,008-0,844). Interestingly, we found that 85% (6/7) of haplotype A carriers had peripheral blood NK expansion compared to 35% (8/23) of haplotype B carriers ($p=0.018$).

Identification of KIR2DL3 in haplotype KIR B carriers was associated with unfavorable outcome of vitro fertilization with donor oocytes but results must be interpreted with care especially because of small sample size and we would recommend that further investigation should be performed to address this gap.

To our knowledge, we report for the first time that interaction between KIR2DL3 and HLA-C might be implicated in unfavorable evolution of pregnancies of KIR B haplotype patients.