

## P121. Obesity and embryo development

*L Seco (ES) [1], R Vazquez (ES) [2], J Iglesias (ES) [3], I Carreño (ES) [4]*

### Context

Embryo quality is a value that defines an embryo with a greater or lesser probability of develop a pregnancy. It is based on morphological and kinetics parameters.

The relationship between nutrition and fertility is demonstrated throughout the scientific literature.

Parental nutritional status is able to intervene in the success of different reproductive stages, like optimal embryo development and quality. Nutrients affect different stages because are involved in metabolism, regulating the enzymatic activity, transduction signals and oxidative stress.

### Objective and methods

Actual bibliographic review to assess wheter obesity influences embryo quality through the study of scientific databases.

### Results

Studies confirm the relationship between parental obesity with significant delay in cell cycle kinetics. When either parent is obese, the number of cells that make up the blastocyst is decreased, and with it the blastocyst quality. When the two parents are obese, produces greater reduction in number of blastocysts and a great delay in embryo development compared with when only one of the parents is obese.

Lipid concentrations in follicular fluid are increased in women with a high fat intake and are related to an overregulation of proapoptotic genes, less production of blastocysts and lower survival to cryopreservation. Presence of free fatty acids (palmitic, stearic and oleic) is related to worse embryo quality, greater fragmentation and less number of blastocysts. A higher intake of Omega-3 acid improves embryo quality.

Studies have established a relationship between leptin (hormone increased in obesity) and embryo quality, high levels are related with poor embryo quality. In patients undergoing IVF the use of gonadotropins decrease leptin levels and are associated with improved embryo quality.

### Conclusions

Obesity is a multifactorial disorder in which genetic and epigenetic factors interact with environmental factors such as physical activity, alcohol, tobacco and nutrition. But we must also take into account factors in which you can not fight as the effects of advanced maternal age.

We must promote a good nutrition status. Balanced diets based on lower intake of processed products with high fat content and high intake of fish, olive oil, fruits and vegetables are the best for improve reproductive health.