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DNA DAMAGE AND REPAIR IN ABORTION PRODUCTS

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Pregnancy loss is the most common obstetric complication and is estimated to affect, at least, one in every four women who tries to conceive. Multiple factors have been associated with recurrent pregnant loss, chromosome abnormalities such as autosomal trisomy, monosomy X and polyploidy, are the most important ones. Identification of the causes of pregnancy loss is very important since may indicate if there is the risk of repetition, in order to reduce recurrence in future pregnancies.

Increased levels of DNA damage and ineffective repair mechanisms are the underlying bio-molecular events in the pathogenesis of most of the life-threatening diseases like cancer and degenerative diseases. Sperm DNA damage has been closely associated with numerous indicators of reproductive health, including, fertilization, embryo quality, implantation and spontaneous abortion. That fact contributes to the interest in analyzing DNA damage in abortion products.

Among the various methods employed in the estimation of DNA damage, alkaline comet assay is proven to be a relatively simple and versatile tool and also in determining the efficacy of DNA repair mechanism.

In this work DNA damage was analyzed in three conception products (PA1, PA2 and PA3). The analysis was made in fresh products and products with 24, 48, 72h of culture. The objective was quantified the DNA damage and verified if the cells have the capacity to repair. The quantification was performed by visual classification of nucleoids. Five comet classes were used, according to the tail intensity and length, from 0 (no tail) to 4 (almost all DNA in tail). 100 comets per gel were analyzed, on a scale of 0-400 arbitrary units.

In the fresh samples analysis it was possible to verify that damage differs in the three products. PA1 does not present damage, with only 53 UA; instead PA2 and PA3 present a high damage with 368 UA and 232 UA respectively. At the end of 48h in culture was possible to observe that the cells were capable to repair because the damage decreases to 49, 18 and 17 UA on PA1, PA2 and PA3 respectively. The damage variation at the 24h and at 72h of culture was not relevant.

Despite the small number of samples we could observe that DNA damage was dissimilar on the different products and the capacity to repair was obtained in all three samples. Because of that, this is an innovative approach to assess DNA damage in

abortion products and the cell capacity to DNA repair as a line of investigation to know if there is a relationship between DNA damage and the occurrence of spontaneous abortions.