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PROPERTIES OF ENDOMETRIAL MESENCHYMAL STEM CELLS AFTER CULTIVATION IN SPHEROIDS

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Human endometrial mesenchymal stem cells (eMSC) were cultivated in 3-D (3D) culture (in spheroids). The properties of eMSC in spheroids evaluated in comparison with eMSC cultured in a monolayer (2D) by the expression of CD markers, the ability to differentiate into osteoblasts, adipocytes and decidual cells, by proliferative activity, replicative senescence and expression of anti-inflammatory genes (TSG-6, HGF, EP2). For restoration of endometrium function, eMSC in spheroids were transplanted into rats with Asherman's syndrome that is characterized by replacement of normal endometrium by connective tissue and decrease in fertility. Transplantation of eMSC in spheroids showed a greater therapeutic effect than transplantation of eMSC after cultivation in a monolayer by the frequency of pregnancy and the number of offspring in experimental animals.

Key words: endometrial mesenchymal stem cells, cell spheroids, Asherman's syndrome