Endometrial regeneration:  
Stem cell therapy in Asherman Syndrome and Atrophic Endometrium  
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The human endometrium is a dynamic remodeling tissue highly regulated by hormonal control that result in a functional window in which the embryo can be implanted into the endometrium. Bone Marrow Stem Cells (BMSC) and adult hematopoietic stem cells might be able to engraft and settle in the endometrium and participate in this renewal. All this process seems to be regulated by the niche that not only has the ability to protect resident stem cells but can also recruit new stem cells from other organs such as the bone marrow.

All these recent findings potentially allow a different approach to certain endometrial pathologies such as endometrial atrophy and Asherman’s Syndrome. Mouse and Rat studies and certain case reports have demonstrated that Bone Marrow Stem Cell transplantation seems to be a feasible therapeutical approach for such pathologies. The aim of this study consists in using isolated progenitor cells derived from peripheral blood through apheresis and subsequent instillation of these cells into the uterine artery, in order to achieve de novo endometrium regeneration in patients affected with Asherman’s Syndrome or endometrial atrophy.

For that purpose, patients diagnosed through hysteroscopy with Asherman’s Syndrome or endometrial atrophy were recruited. After previously explanation and written informed consent Peripheral Blood Progenitor Stem Cells were mobilized and harvested. Subsequently CD 133+ cells were sorted and finally instilled into the uterine artery under radiologic guidance.

Subsequently, endometrial cavity, endometrial growth and ART outcomes were assessed after Bone Marrow Stem Cell Transplantation.