

Autologous stem cell ovarian transplant (ASCOT) to improve ovarian reserve in Poor responder patients.

A residual pool of quiescent follicles remains, even in the ovaries of premature ovarian insufficiency (POI) patients, and could potentially contribute to increase the final yield of oocytes. In fact, competent oocytes could be retrieved following the activation and growth of these remaining follicles by several approaches, providing them with an appropriate growth-supporting ovarian niche.

We recently described that bone marrow-derived stem cells (BMDSC) infusion promotes human and mouse follicular growth by increasing ovarian vascularization, stromal cell proliferation, and reducing cell death. Also promoted fertility rescue in ovarian damage mouse models by allowing spontaneous pregnancies.

Then a prospective pilot study with 17 poor responder (PR) women was developed. BMDSC were mobilized, isolated by aphaeresis and delivered into one ovarian artery by catheterism (ASCOT). Serum AMH and AFC were monitored up to 5 months and COS induced when appropriate. Our results suggest that ASCOT improved ovarian reserve markers and oocyte quantity allowing pregnancy in aged and PR women whose only clinical option was oocyte donation. Nevertheless, the ASCOT technique does not improve embryo euploidy in our already aged population.