

Quantifying Natural Killer Cells from the Endometrium

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Background

Human implantation is poorly understood and a number of diagnostic tests have been introduced into daily practice with very little evidence to support them. These include analysis of endometrial biopsies for Natural Killer (NK) cells, endometrial cytokines and leukocytes.^{1,2}

NK testing is currently widely practiced, and some studies indicate potential benefit in reducing NK numbers in those with repeated reproductive failure, however the pathophysiology behind these hypotheses is unclear. Therefore, there is a need to review the measurement of uterine NK cells and the associated therapies available in those undergoing IVF treatment.³

Objectives

Measure the number of uterine natural killer cells present in the endometrium of women of reproductive age seeking fertility treatment.

Methods

Prospective cohort study of 100 women seeking infertility treatment. These women underwent endometrial biopsy in the midluteal phase and their biopsies were immunostained for CD56 (surface marker on NK cells – Image 1) and cell counting was performed by using laboratory protocol.

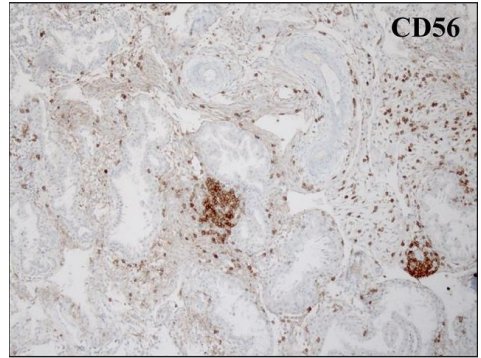


Image 1 – CD56 stained cells in an endometrial biopsy (brown in colour)⁴

Results

Mean age: 37 years

Age range in sample: 30-50 years

Mean of total cells collected from each woman's biopsy: 1996

Mean CD56 cells counted in each woman's biopsy: 219

Range: 238-1112

Mean percentage of CD56 cells in each woman's biopsy as compared to total cells: 11%

Conclusion

While all the women in the sample were seeking fertility treatment, with such a large range of NK cells detected, further research is needed to develop a reliable test to determine high presence of NK cells. This will lead to quantifying a normal reference range. Age does not seem to be a determining factor in those with a presence of higher NK cells.

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