Vascular Development in Non-Pregnant Endometrium

R Mamode Ally[1], BA Innes, JN Bulmer and GE Lash
[1] ruwaydah.mamode-ally@ncl.ac.uk

Background:

- Previous research by the group showed that the spiral arteries in the endometrium of women with recurrent miscarriage had increased layers of vascular smooth muscle cells (VSMCs) coating the endothelial cells (ECs) compared to normal women
- Angiogenic growth factors have been proposed to play a role in this EC:VSMC association

Aims:

The role of TGF-βI in EC:VSMC association was investigated
In particular, the role of exogenous TGF-βI on the expression of TGF-βI, TGF-βRI and TGF-βRII by EC and VSMC was investigated by immunocytochemistry

Methods

Immunocytochemistry

2 chamber slides for each cell type were set up

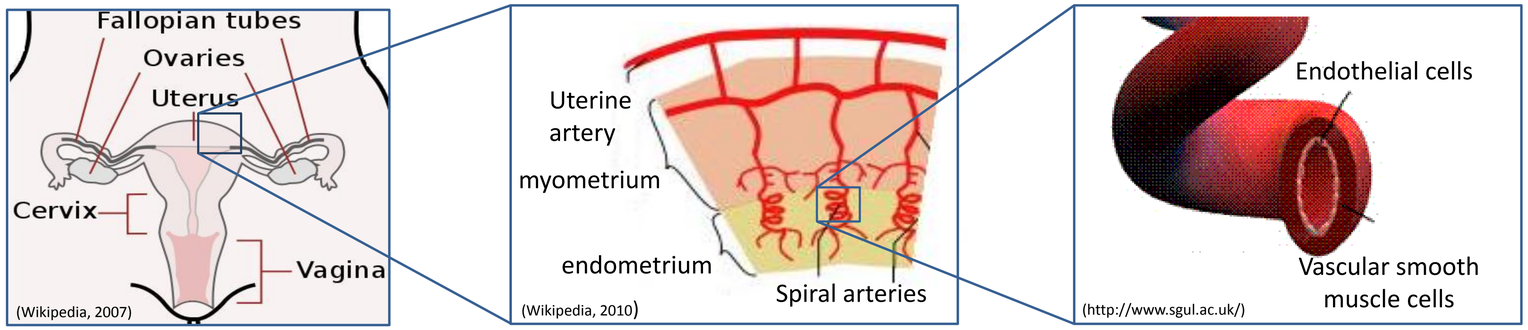
Then to 1 slide of each cell type 5ng/ml of TGF-βI was added in each well. For the other slides in each well, 10mM of acetic acid were added. All the slides were then incubated for 24h at 37°C

The slides were stained with primary monoclonal antibodies for TGF-βI, TGF-βRI and TGF-βRII and developed in DAB (3, 3 diaminobenzidine) before being mounted in DPX.

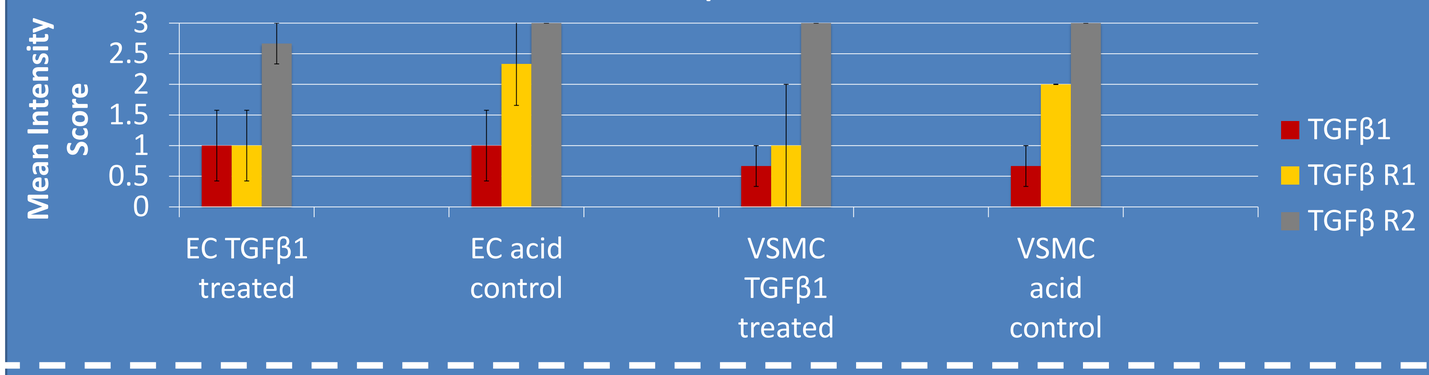
The experiment was repeated thrice (n=3)

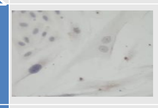
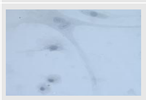
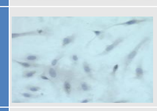
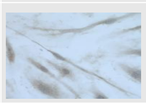
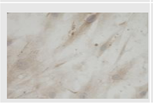
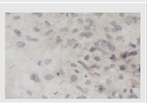
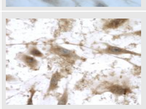
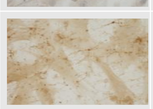
Each well was then given a score between 0-3 based on the staining intensity with 0=none, 1=weak, 2=moderate, 3=strong and a mean score was calculated.

Non-pregnant uterus and endometrium



Evidence of TGF-βI in EC:VSMC association



Experiments / Expressions	EC TGF-βI treated	EC acid control	VSMC TGF-βI treated	VSMC acid control
TGF-βI				
TGF-βRI				
TGF-βRII				

There are no significant differences in the expression of TGF-βI, TGF-βRI and TGF-βRII between the treated EC and VSMC cells and the controls.
This project provided evidence for a role of TGF-βI in EC:VSMC association. These results together with earlier findings may lead to further studies of modulating TGF-βI expression to mimic disease states and to be used as potential target for novel therapies in aberrant vascular development.

Conclusion:

Exogenous TGF-βI seemed to have no effect on TGF-βI, TGF-βRI and TGF-βRII expression in both cell types according to the immunocytochemistry performed.

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