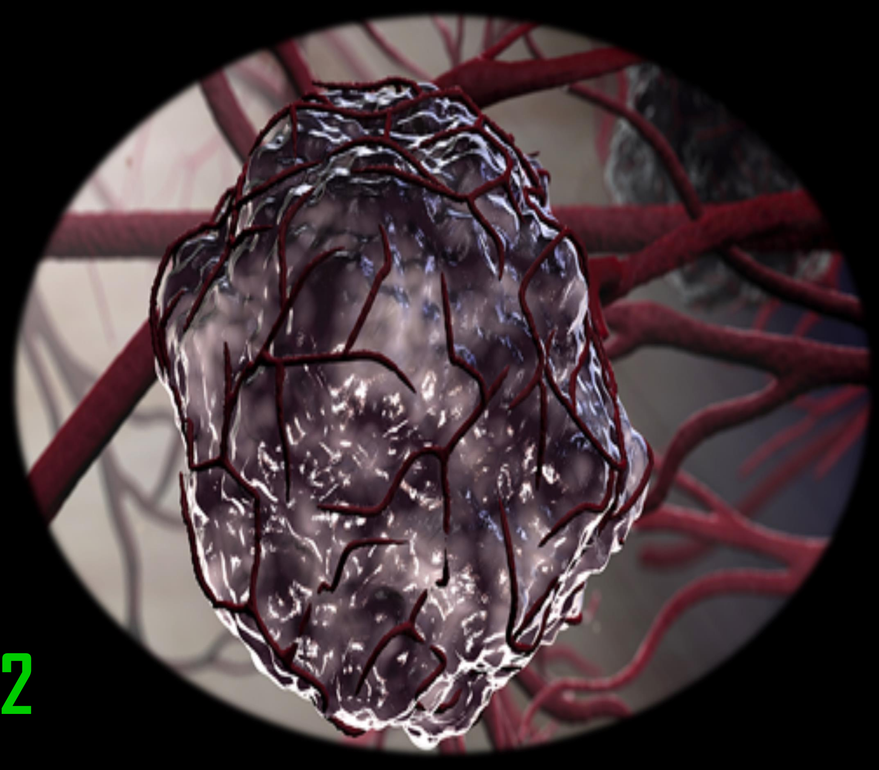
PM-02: The Anti-angiogenic Activity of Anti-IL17 and Anti-CCL20 in Breast Cancer Tumor Microenvironment



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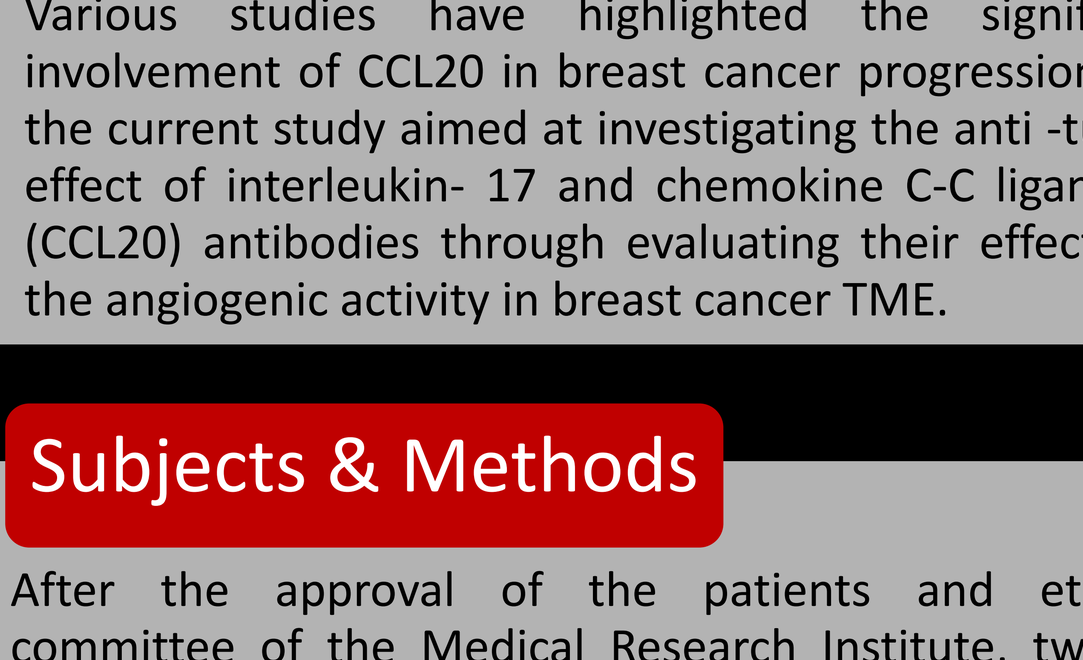
Introduction

Breast cancer remains a significant global health challenge, necessitating innovative therapeutic approaches. Despite of the good prognosis of primary breast cancer , once it metastasizes the prognosis drops markedly. The complex interplay between malignant cells and the surrounding microenvironment is a critical determinant of cancer progression that plays a pivotal role in sustaining tumor growth and facilitating metastatic dissemination.

Proinflammatory cytokine interleukin-17 (IL-17), mainly generated by T helper 17 (Th17) cells, has emerged as a versatile contributor in cancer biology. Chemokine C-C Ligand 20 (CCL20), a small signaling protein, plays a role in attracting and directing immune cells within the TME. Various studies have highlighted the significant involvement of CCL20 in breast cancer progression. So, the current study aimed at investigating the anti -tumor effect of interleukin- 17 and chemokine C-C ligand 20 (CCL20) antibodies through evaluating their effects on the angiogenic activity in breast cancer TME.

Subjects & Methods

After the approval of the patients and ethical committee of the Medical Research Institute, twenty Egyptian females who endue for modified radical mastectomy for histologically proved breast cancer were recruited from the Department of Surgery and Experimental Medicine, Medical Research Institute, Alexandria University.



The levels of angiogenesis were measured by indirect immunofluorescence technique (IIF) via detection of **anti-CD31** primary antibody and secondary anti-mouse fluorescent conjugated antibody
Fluorescence intensity was quantified using image j software.

Results

Results of the current study showed that according to the detected level of CD31 expression, Spontaneous angiogenesis were significantly higher in untreated breast tumor tissue cultures compared to normal tissue.

Neutralizing either IL-17 or CCL20 with their specific antibodies further decreased angiogenic activity in all tissue culture systems created in the study.

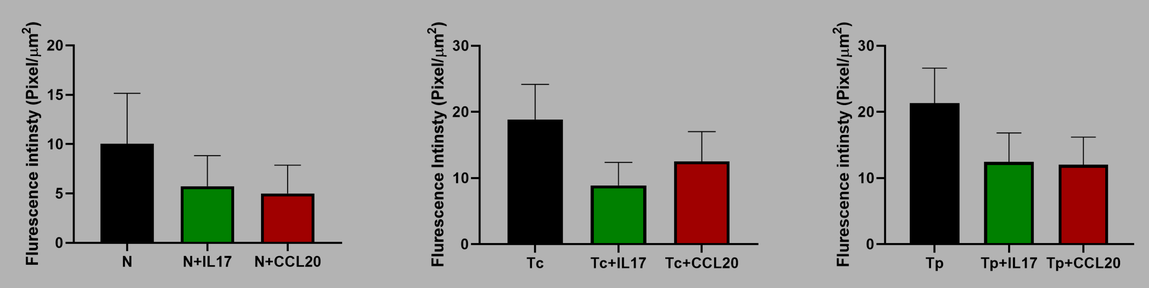


Fig 1 : Graphical representation of CD 31 expression in the different tissue culture systems

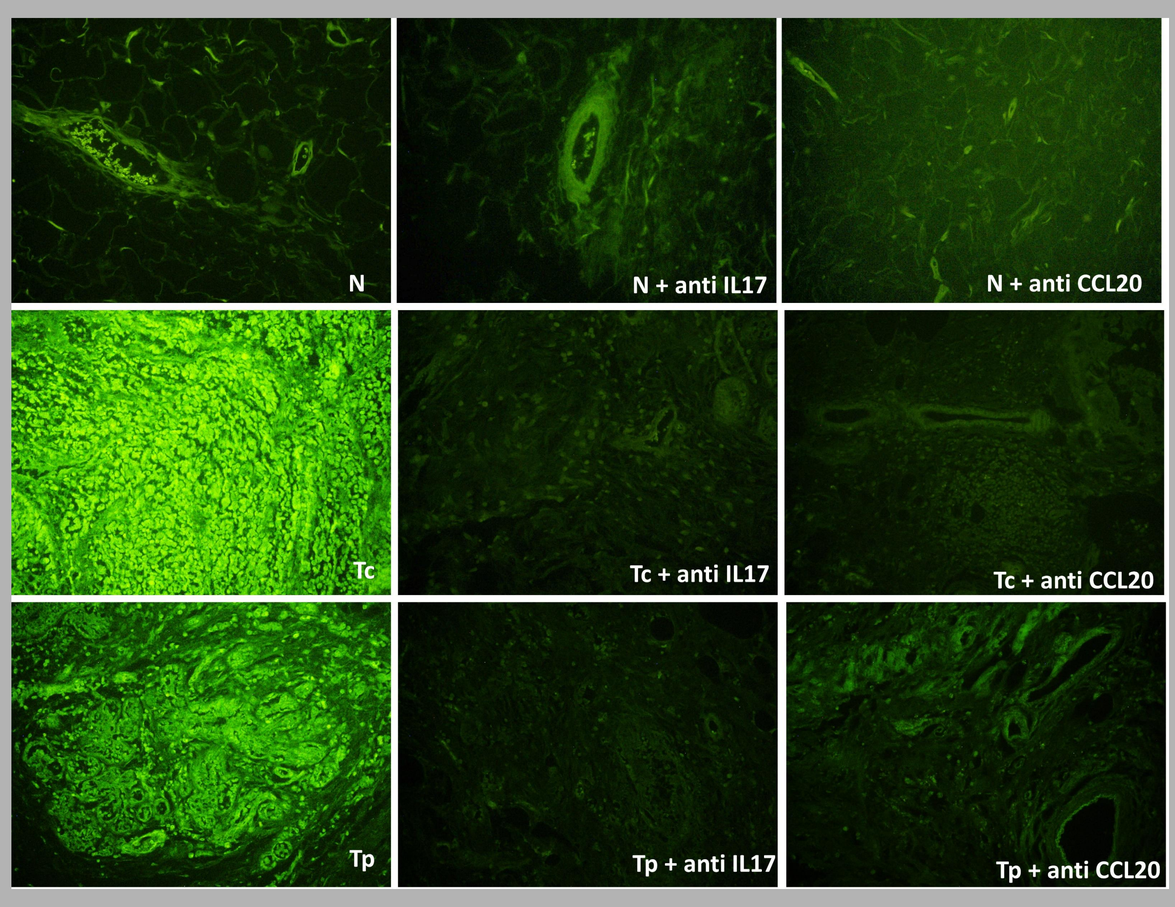


Fig 2: Immunofluorescence staining of CD 31 expression in the different tissue culture systems (20x)

Conclusion

According to the current study findings, it can be concluded that:

- The level of angiogenesis in our own designed breast tumor tissue culture systems (without treatment) is significantly higher than that of the corresponding breast normal ones.
- Neutralizing either IL-17 or CCL20 activities by its specific Abs significantly decreases the angiogenesis within the breast tissue culture system either tumor (core and peripheral) or normal tissues.

References

- *Vitiello, G. A., & Miller, G. (2020). Targeting the interleukin-17 immune axis for cancer immunotherapy. J Exp Med, 217(1)*
- *Seif, F., Torki, Z., Zalpoor, H., Habibi, M., & Pornour, M. (2023). Breast cancer tumor microenvironment affects Treg/IL-17-producing Treg/Th17 cell axis: Molecular and therapeutic perspectives. Mol Ther Oncolytics, 28, 132-157.*
- *Marsigliante, S., Vetrugno, C., & Muscella, A. (2016). Paracrine CCL20 loop induces epithelial-mesenchymal transition in breast epithelial cells. Molecular carcinogenesis, 55(7), 1175-1186.*