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Epidemiologic patterns of breast cancer in Northern Saudi Arabia

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Objective: The aim of this study was to find out the prevalence rates of common types of breast cancer in Northern Saudi Arabia.

Methodology: A retrospective cohort study was carried out over a five year period in two referral hospitals. In this study 257 files were retrieved from departments of Surgery from different hospitals in Hail region, Kingdom of Saudi Arabia (KSA). Results: Of the 257 samples diagnosed using Fine Needle Aspiration Cytology (FNAC), histopathological diagnosis was confirmed for 158 patients. Of the 158 diagnosed samples, 46/158 (23.2%) were ductal carcinoma, 7/158(4.4%) were lobular carcinoma, 3/158(1.9%) were mixed tumors, and 102/158(64.6) were fibroadenoma. Conclusion: Ductal carcinoma are the prevalent breast cancer in Hail, KSA.

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Renal cell tumor-mediated conversion of natural killer cells to a pro-angiogenic phenotype by transforming growth beta and hypoxia

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Statement of the Problem: Natural killer (NK) cells are classically associated with immune surveillance and destruction of tumor cells via cytotoxicity. Inconsistent with this function, influxes of NK cells are found in advanced renal cell carcinoma (RCC) tumors. NK cells with non-classical phenotypes (CD56+CD16dim/neg; termed decidua NK (dNK) cells) accumulate at the maternal-fetal interface during implantation. These dNK cells are poorly cytotoxic, proangiogenic, and facilitate growth of the implant. These effects are mediated, in part, by transforming growth factor beta (TGFβ). The purpose of this study was to determine whether an analogous shift in NK cell phenotype/function occurs in RCC tumors potentiated by tumor-derived TGFβ and hypoxia.

Methodology: NK cells from peripheral blood (pNK) and resected tumor tissue (TiNK) of RCC patients were compared to pNK from healthy donors. pNK cells were cultured in the absence or presence of TGFβ and 21% or 1% oxygen to assess conversion by monitoring expression of surface markers and angiogenic genes as well as ability to directly kill target cells. An orthotopic mouse model of RCC was also used, where the murine renal adenocarcinoma cell line, Renca, was implanted directly into the kidneys of Balb/c mice. Findings: TGFβ and hypoxia effectively converted pNK cells to a CD56+CD16dim/neg phenotype characteristic of dNK cells. These culture-induced dNK-like cells were poorly cytotoxic and produced factors that promote vascularization and tissue remodeling, suggesting a supportive role in tumor progression and metastasis. We also found NK cells isolated from human and murine RCC tumors are phenotypically and functionally different from matched pNK confirming that RCC tumor-related factors are able to alter NK cells.

Conclusion & Significance: These studies support a role for TGFβ and hypoxia in conversion of pNK cells to a dNK-like phenotype in RCC tumors. While these characteristics are conceivably beneficial for placentation, they may be exploited to support RCC growth and metastasis.

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