Male Sex Hormones Act as New Targets for Cancer Immunotherapy

New insights into why men fail to mount as powerful an immune response to many cancers as women do.

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Men often fare worse than women when it comes to cancers that originate in nonreproductive organs, such as bladder and liver cancer. Men tend to have higher incidence, faster progression, poorer response to treatment and worse survival, but why this is the case has not been understood.

Now a landmark study has pinpointed how male sex hormones may affect immunity in ways that alter men's response to cancer and cancer treatment. The study, published in Science Immunology, looked at the differences in immune responses in tumor cells extracted from male and female patients.

Researchers from the Pelotonia Institute for Immuno-Oncology at The Ohio State University Comprehensive Cancer Center focused on T-cell immune responses, which play an important role in cancer outcomes and have helped drive major advances in cancer immunotherapy in recent years.

Androgens—male sex hormones, a class that includes testosterone—are present in higher concentrations in males. The study found that they contribute to sex differences in cancer outcomes by weakening the tumor-fighting function of CD8 T cells (commonly known as "killer" T cells), resulting in "exhausted" T cells.

"Androgen-mediated promotion of CD8 T cell dysfunction results in faster tumor growth and worsened outcomes, and targeting of this signaling cascade holds a crucial key to improving current cancer immunotherapies," the study's senior corresponding author, Zihai Li, MD, PhD, said in a news release.

To learn more, see "How Does the Immune System Fight Cancer?"

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