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Commentary

treatment and Prognosis of Adrenocortical Cancer

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DESCRIPTION

One of the life-threatening endocrine malignancies is Adrenocortical Carcinoma (ACC), and ACC growth and progression are vitally dependent on telomere maintenance by active telomerase. Since they are essential for maintaining telomere homeostasis, Telomerase Reverse Transcriptase (TERT) and Regulation of Telomere Elongation Helicase 1 (RTEH1) have an effect on the causes of and results of ACC. In comparison to their benign or normal counterparts, analyses of the TCGA and GEO datasets revealed considerably greater production of *RTEL1* but not *TERT* in ACC tumors. Additionally, *TERT* and *RTEL1* gene gains/amplifications were both common in ACC tumors, and the expression of these genes linked with respective gene copy counts.

In the TCGA ACC patient cohort, greater levels of either *TERT* or *RTEL1* expression were linked to shorter overall and Progression Free Survival (PFS), while elevated doses of both *TERT* and RTEL1 mRNA predicted the lowest patient OS and PFS. But multivariate analysis revealed that only *RTEL1* could predict patient OS and PFS on its own. In ACC tumors expressing high amounts of *TERT* and *RTEL1* mRNA, gene set enrichment analysis also revealed enrichments of the wnt/-catenin, MYC, glycolysis, MTOR, and DNA synthesis signaling pathways. *TERT* and *RTEL1* work synergistically to enhance ACC aggressiveness, and they may be used as prognostic indicators and treatment targets for ACC.

Failure of the immunotherapeutic response in adrenocortical carcinomas underlines the need for innovative approaches that target immune cell groups in the tumor microenvironment to overcome tumor resistance and improve therapeutic response. Infiltration of tumor mast cells and better outcomes in people with adrenocortical carcinomas were recently the subject of a study that looked at a novel relationship. This analysis helps to identify possible new immunotherapeutic targets.

A right-sided adrenocortical carcinoma, hepatic, and pulmonary metastases were found in a 3-year-old kid with a family history of Li-fraumeni Syndrome. He had chemotherapy for eight rounds with the drugs cisplatin, etoposide, doxorubicin, and mitotane. A follow-up CT Thorax/Abdomen/Pelvis with contrast showed that the right suprarenal mass had shrunk, the liver metastases had attenuated less, and there was still one pulmonary nodule. It was suggested to do an open adrenalectomy and to remove hepatic metastases after a multidisciplinary meeting's discussion. When adrenohepatic infiltration into the right hepatic lobe was discovered intraoperatively, it was decided to execute a full, en block excision of the mass. Radiologically, the final pulmonary nodule disappeared.

The patient is still doing well and is still receiving mitotane maintenance adrenolytic medication. Zero loco regional illness recurrence has been detected on imaging thirteen months after surgery. A uncommon incidence in metastatic adrenocortical cancer is disease-free remission. This is the first case report showcasing the meticulous surgical treatment of a young patient with a metastatic adrenocortical carcinoma's first presentation.

A wide range of illnesses have been treated using corticosteroids. As a result, preventive medication has been shown effective and the link between elevated cortisol levels and infections is well documented. Due to the rarity and poor prognosis of adrenocortical cancer, little is understood about how to manage consequences brought on by excessive hormone production, such as Cushing's syndrome.

CONCLUSION

Three months prior, the patient was identified as having Cushing's disease and metastatic adrenocortical cancer. There is a connection between opportunistic infections and severe hypercortisolism brought on by adrenocortical cancer. Clinicians must maintain a high index of expectation for opportunistic infections, such as cryptococcosis, in patients with adrenocortical cancer and Cushing's syndrome since these infections may be curable with early identification and rapid treatment.

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