

# Renal Cell Carcinoma: Causes, Treatment and Symptoms

David Perego\*

Department of Clinical Sciences and Community Health, University of St Andrews, Milan, Italy

\*Corresponding author: David Perego, Department of Clinical Sciences and Community Health, University of St Andrews, Milan, Italy, E-mail: Davidperego@gmail.com

Received date: May 3, 2021; Accepted date: May 17, 2021; Published date: May 24, 2021

Citation: Perego D (2021) Renal Cell Carcinoma: Causes, Treatment and Symptoms. J Clin Exp Pathol 11: e132.

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## Description

Renal cell carcinoma is a highly heterogeneous cancer group. The complex microenvironment of the tumor provides appropriate immune evasion opportunities. Renal cell carcinoma (RCC) is one of the urinary system malignant tumors that accounts for 3% of all new cases of cancer in females and 5% in males with an incidence of about 400,000 cases worldwide, and it's one among the world's 10 commonest cancers. The molecular mechanism of immune escape in renal cell carcinoma is currently a hot issue focusing primarily on the major complex of histocompatibility, immunosuppressive cells and their secreted immunosuppressive cytokines, and apoptosis molecule signal transduction. Immunotherapy is that the best treatment option for patients with metastatic or advanced renal cell carcinoma and combination immunotherapy supported a spread of principles has shown promising prospects. Comprehensive and in-depth knowledge of the molecular mechanism of immune escape in renal cell carcinoma is of important importance for the clinical implementation of effective therapies. The goal of this review is to deal with research into the mechanisms of immune escape in renal cell carcinoma and therefore the use of the newest immunotherapy. In addition, we are all looking forward to the newest frontiers of experimental combination immunotherapy. RCC is a heterogeneous group of cancers arising from renal tubular epithelial cells, consisting of different subtypes; clear cell RCC is the most frequent, accounting for about 75%, followed by papillary, chromophobe.

Following the classification of renal cell carcinoma by the World Health Organization in 2016, new and emerging provisional renal entities are defined by scientists; this significantly deepens the understanding of the immunohistochemistry, morphology and molecular features of renal tumors.

Renal cell carcinoma (RCC), the foremost lethal sort of genitourinary cancer, is usually immune to chemotherapy and radiotherapy. Surgical excision of the tumor at a localized stage remains the mainstay for curative therapy. A number of medicine developed in recent years have shown limited to significant efficacy in treating RCC. These drugs act by blocking critical signaling pathways related to RCC tumor growth and survival and angiogenesis. Beyond well-validated signaling targets such as VHL, VEGFR and mTOR, additional pathways including HGF/c-MET and wnt/ $\beta$ -catenin have emerged as important to RCC pathogenesis. Mutations in one or more components of those signaling networks may affect tumor response to therapy.

Renal cell carcinoma (RCC) is the most common type (>80%) of kidney cancer. Claiming more than 100,000 lives per year worldwide, RCC accounts for about 3% of all adult cancers and its incidence is rising. With newer therapies, the median survival period of patients with advanced RCC is about 26 months. Men are at a greater risk for developing RCC than women. Hereditary factors, tobacco smoking, obesity, hypertension and related medication and chronic kidney failure are a number of the common risk factors for RCC.

## Causes of RCC

Renal cell carcinoma is the common sort of kidney cancer in adults. The following may increase your risk of kidney cancer: Smoking, obesity, dialysis treatment, family history of the disease, high blood pressure, horseshoe kidney, long-term use of certain medicines, such as pain pills or water pills (diuretics), polycystic kidney disease, Von Hippel-Lindau disease (a hereditary disease that affects blood vessels in the brain, eyes, and other body parts), Birt-Hogg-Dube syndrome (a genetic disease associated with benign skin tumors and lung cysts).

## Treatment of RCC

Surgery to get rid of all or a part of the kidney is typically recommended. This may include removing the bladder, surrounding tissues, or lymph nodes. A cure is unlikely unless all of the cancer is removed with surgery. Chemotherapy is usually not effective for treating kidney cancer in adults. Newer immune system medicines may help some people. Medicines that target the development of blood vessels that feed the tumour may be used to treat kidney cancer. Your provider can tell you more. Radiation therapy is typically done when the cancer spreads to the bone or brain.

## Symptoms of RCC

Symptoms of this cancer may include any of the following: Abdominal pain and swelling, back pain, blood in the urine, swelling of the veins around a testicle (varicocele), flank pain, weight loss, fever, liver dysfunction, elevated erythrocyte sedimentation rate (ESR), excessive hair growth in females, pale skin, vision problems.