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Kidney Cancer: Current Trends

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Abstract

Worldwide, kidney cancer accounts for about 2% of all cancers with an annual incidence of approximately 150,000 new cases and 78,000 die from the disease every year. In the US, it is the seventh and ninth most common cancer in men and women respectively, with an estimated incidence of 58 000 and 13 000 deaths in 2009. Several risk factors like BMI, hypertension and tobacco use predispose to the development of renal cell carcinoma. Several cohorts have also suggested a link between renal cell carcinoma and diabetes mellitus. Kidney cancer comprises of clear cell renal cell carcinoma (RCC) arising from renal parenchyma and transitional cell carcinoma of the renal pelvis. In the US more than 80 percent of kidney cancers are renal cell carcinomas with transitional cell carcinomas comprising of less than 10 percent of overall kidney cancers. In children Wilms tumor (Nephroblastoma) contributes to the majority of kidney cancers, comprising about 1.1% of all kidney cancers. Accumulating evidence implicates physical exercise, consumption of alcohol, occupational exposure to trichloroethylene and parity in women as protective or risk factors. In a Chinese study it was shown that that abnormal lipid profile might influence the risk of renal cell carcinoma. Kidney cancer is not a single disease; rather, comprised of a number of different histologically and genetically distinct types of cancer. Each type has variable clinical course. The VHL gene is the gene for clear cell kidney cancer. Till now FDA has approved seven agents that target the VHL pathway in the treatment of patients with advanced kidney cancer. Bevacizumab, Sorafenib, Sunitinib, Axitinib, Temsirolimus and Everolimus are among them. Other genes implicated in renal cancer are MET, FLCN,fumarate hydratase, succinate dehydrogenase, TSC1, TSC2, and TFE3. There are also various types of familial kidney cancers like Von Hippel Lindau, Birt Hogg Dube, hereditary papillary renal carcinoma, hereditary leiomyomatosis renal cell carcinoma, Cowden's disease, succinate dehydrogenase kidney cancer and tuberous sclerosis complex. People with kidney cancer rarely present with signs and symptoms in early stages. In most cases the disease is incidentally noted when the patient undergoes any imaging procedures. In later stages of disease patient may present with hematuria, severe back pain, weight loss and fatigue. Treatment of kidney cancer is based on the extent of the disease. For localized cancers, surgery is done to remove the tumor. Partial nephrectomy, simple nephrectomy and radical nephrectomy are the procedures commonly used. Arterial Embolization is used before surgery to shrink the tumor if it's of larger size. Radiotherapy and chemotherapy are used in inoperable patients with metastatic disease. A new approach called targeted therapy has been increased used recently in which cancer cells are specifically targeted sparing normal cells. In kidney cancer monoclonal antibodies and kinase inhibitors are the agents used for target therapy. New approaches like High-intensity focused ultrasound and ablation with cryotherapy are being studied for their use in kidney cancer.

Biography

Karthik Thamarai Kannan is a young physician from India who has recently graduated from Sri Ramachandra Medical School in Chennai, India. He is aspiring to match into a residency program in the USA and is looking forward to a long career as a teaching clinician.