RENAL CELL CARCINOMA

a comprehensive guide to symptoms, treatment, research and support

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How To Use This Medifocus Guidebook

MediFocus Guidebook Organization and Content

Before you start to review your *Guidebook*, it would be helpful to familiarize yourself with the organization and content of the information that is included in the Guidebook. Your *MediFocus Guidebook* is organized into the following five major sections.

- **Section 1: Background Information** - This section provides detailed information about the organization and content of the *Guidebook* including tips and suggestions for conducting additional research about the condition.

- **Section 2: The Intelligent Patient Overview** - This section is a comprehensive overview of the condition and includes important information about the cause of the disease, signs and symptoms, how the condition is diagnosed, the treatment options, quality of life issues, and questions to ask your doctor.

- **Section 3: Guide to the Medical Literature** - This section opens the door to the latest cutting-edge research and clinical advances recently published in leading medical journals. It consists of an extensive, focused selection of journal article references with links to the PubMed® abstracts (summaries) of the articles. PubMed® is the U.S. National Library of Medicine's database of references and abstracts from more than 4,500 medical and scientific articles published worldwide.

- **Section 4: Centers of Research** - This section is a unique directory of doctors, researchers, hospitals, medical centers, and research institutions with specialized interest and, in many cases, clinical expertise in the management of patients with the condition. You can use the "Centers of Research" directory to contact, consults, or network with leading experts in the field and to locate a hospital or medical center that can help you.

- **Section 5: Tips for Finding and Choosing a Doctor** - This section of your *Guidebook* offers important tips for how to find physicians as well as suggestions for how to make informed choices about choosing a doctor who is right for you.

- **Section 6: Directory of Organizations** - This section of your *Guidebook* is a directory of select disease organizations and support groups that are in the business of helping patients and their families by providing access to information, resources, and services. Many of these organizations can answer your questions, enable you to network with other patients, and help you find a doctor in your geographical area who specializes in managing your condition.

MediFocus Guidebook Formats

This *MediFocus Guidebook* is available in both an *electronic* format as well as a *printed* format.

The electronic and printed formats follow the same basic outline with respect to organization and content of the various sections. The primary difference between the two formats pertains to the method of accessing the PubMed® abstracts (summaries) of the journal article references in the "The Guide to the Medical Literature" section (Section 3) of the *Guidebook*.

- **Electronic Format** - You can easily access the PubMed® abstracts of the journal article references by simply clicking on the "Abstract URL" link for the corresponding article.

- **Printed Format** - If you purchased the printed format of this *MediFocus Guidebook*, you have two options for accessing the PubMed® abstracts of the journal article references in Section 3 of the *Guidebook*:

    - Manually type in the "Abstract URL" information for a specific article directly into your computer's browser (e.g., Internet Explorer, Netscape) and you will be directed to the PubMed® abstract of the article.

    - Use the electronic format of your *Guidebook* to access the journal article abstracts. When you purchased the printed copy of this *Guidebook*, you were also provided free online access to the electronic format of the same *Guidebook* for one year. You can easily access the PubMed® abstracts of the journal article references by simply clicking on the "Abstract URL" link for the corresponding article.

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How to Access Updates of Your Guidebook

With your initial purchase of this *MediFocus Guidebook*, you also have online access to updates of the Guidebook for one full year free of charge. *MediFocus Guidebooks* are updated with new information every 4 months so that you can stay current with the latest developments about your condition. Shortly after the *Guidebook* has been updated, we post the latest updated version (with the new date) on our web site. We invite you to visit our web site every one or two months to check if an updated version of your *Guidebook* has been posted since your last visit.

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- Visit our web site at http://www.medifocus.com
- On the left side of the Home page you will see a listing of the "Diseases and Conditions"
- Click on the name of the disease or condition of your *Guidebook*.
- The latest date of revision (update) of your *Guidebook* is posted within the blue box just below the image of the *Guidebook*.

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1 - Background Information

Introduction

Chronic or life-threatening illnesses can have a devastating impact on both the patient and the family. In today's new world of medicine, many consumers have come to realize that they are the ones who are primarily responsible for their own health care as well as for the health care of their loved ones.

When facing a chronic or life-threatening illness, you need to become an educated consumer in order to make an informed health care decision. Essentially that means finding out everything about the illness - the treatment options, the doctors, and the hospitals - so that you can become an educated health care consumer and make the tough decisions. In the past, consumers would go to a library and read everything available about a particular illness or medical condition. In today's world, many turn to the Internet for their medical information needs.

The first sites visited are usually the well known health "portals" or disease organizations and support groups which contain a general overview of the condition for the layperson. That's a good start but soon all of the basic information is exhausted and the need for more advanced information still exists. What are the latest "cutting-edge" treatment options? What are the results of the most up-to-date clinical trials? Who are the most notable experts? Where are the top-ranked medical institutions and hospitals?

The best source for authoritative medical information in the United States is the National Library of Medicine's medical database called PubMed®, that indexes citations and abstracts (brief summaries) of over 7 million articles from more than 3,800 medical journals published worldwide. PubMed® was developed for medical professionals and is the primary source utilized by health care providers for keeping up with the latest advances in clinical medicine.

A typical PubMed® search for a specific disease or condition, however, usually retrieves hundreds or even thousands of "hits" of journal article citations. That's an avalanche of information that needs to be evaluated and transformed into truly useful knowledge. What are the most relevant journal articles? Which ones apply to your specific situation? Which articles are considered to be the most authoritative - the ones your physician would rely on in making clinical decisions? This is where *Medifocus.com* provides an effective solution.

Medifocus.com has developed an extensive library of *MediFocus Guidebooks* covering a wide spectrum of chronic and life threatening diseases. Each *MediFocus Guidebook* is a high quality, up- to-date digest of "professional-level" medical information consisting of the most relevant citations and abstracts of journal articles published in authoritative, trustworthy medical journals. This information represents the latest advances known to modern medicine for the treatment and management of the condition, including published results from clinical trials. Each *Guidebook* also includes a valuable index of leading authors and medical institutions as well as a directory of disease organizations and support groups. *MediFocus Guidebooks* are reviewed, revised and

updated every 4-months to ensure that you receive the latest and most up-to-date information about the specific condition.

About Your MediFocus Guidebook

Introduction

Your *MediFocus Guidebook* is a valuable resource that represents a comprehensive synthesis of the most up-to-date, advanced medical information published about the condition in well-respected, trustworthy medical journals. It is the same type of professional-level information used by physicians and other health-care professionals to keep abreast of the latest developments in biomedical research and clinical medicine. The *Guidebook* is intended for patients who have a need for more advanced, in-depth medical information than is generally available to consumers from a variety of other resources. The primary goal of a *MediFocus Guidebook* is to educate patients and their families about their treatment options so that they can make informed health-care decisions and become active participants in the medical decision making process.

The *Guidebook* production process involves a team of experienced medical research professionals with vast experience in researching the published medical literature. This team approach to the development and production of the *MediFocus Guidebooks* is designed to ensure the accuracy, completeness, and clinical relevance of the information. The *Guidebook* is intended to serve as a basis for a more meaningful discussion between patients and their health-care providers in a joint effort to seek the most appropriate course of treatment for the disease.

Guidebook Organization and Content

Section 1 - Background Information

This section provides detailed information about the organization and content of the *Guidebook* including tips and suggestions for conducting additional research about the condition.

Section 2 - The Intelligent Patient Overview

This section of your *MediFocus Guidebook* represents a detailed overview of the disease or condition specifically written from the patient's perspective. It is designed to satisfy the basic informational needs of consumers and their families who are confronted with the illness and are facing difficult choices. Important aspects which are addressed in "The Intelligent Patient" section include:

- The etiology or cause of the disease
- Signs and symptoms
- How the condition is diagnosed
- The current standard of care for the disease
- Treatment options
- New developments
- Important questions to ask your health care provider

Section 3 - Guide to the Medical Literature

This is a roadmap to important and up-to-date medical literature published about the condition from authoritative, trustworthy medical journals. This is the same information that is used by

physicians and researchers to keep up with the latest developments and breakthroughs in clinical medicine and biomedical research. A broad spectrum of articles is included in each *MediFocus Guidebook* to provide information about standard treatments, treatment options, new clinical developments, and advances in research. To facilitate your review and analysis of this information, the articles are grouped by specific categories. A typical *MediFocus Guidebook* usually contains one or more of the following article groupings:

- *Review Articles:* Articles included in this category are broad in scope and are intended to provide the reader with a detailed overview of the condition including such important aspects as its cause, diagnosis, treatment, and new advances.

- *General Interest Articles:* These articles are broad in scope and contain supplementary information about the condition that may be of interest to select groups of patients.

- *Drug Therapy:* Articles that provide information about the effectiveness of specific drugs or other biological agents for the treatment of the condition.

- *Surgical Therapy:* Articles that provide information about specific surgical treatments for the condition.

- *Clinical Trials:* Articles in this category summarize studies which compare the safety and efficacy of a new, experimental treatment modality to currently available standard treatments for the condition. In many cases, clinical trials represent the latest advances in the field and may be considered as being on the "cutting edge" of medicine. Some of these experimental treatments may have already been incorporated into clinical practice.

The following information is provided for each of the articles referenced in this section of your *MediFocus Guidebook:*

- Article title
- Author Name(s)
- Institution where the study was done
- Journal reference (Volume, page numbers, year of publication)
- Link to Abstract (brief summary of the actual article)

Linking to Abstracts: Most of the medical journal articles referenced in this section of your *MediFocus Guidebook* include an abstract (brief summary of the actual article) that can be accessed online via the National Library of Medicine's PubMed® database. You can easily access the individual abstracts online via PubMed® from the "electronic" format of your *MediFocus Guidebook* by clicking on the corresponding URL address that is provided for each cited article. If you purchased a printed copy of a *MediFocus Guidebook*, you can still access the article abstracts online by entering the individual URL address for a particular article into your web browser.

Section 4 - Centers of Research

We've compiled a unique directory of doctors, researchers, medical centers, and research institutions with specialized research interest, and in many cases, clinical expertise in the

management of the specific medical condition. The "Centers of Research" directory is a valuable resource for quickly identifying and locating leading medical authorities and medical institutions within the United States and other countries that are considered to be at the forefront in clinical research and treatment of the condition.

Inclusion of the names of specific doctors, researchers, hospitals, medical centers, or research institutions in this *Guidebook* does not imply endorsement by Medifocus.com, Inc. or any of its affiliates. Consumers are encouraged to conduct additional research to identify health-care professionals, hospitals, and medical institutions with expertise in providing specific medical advice, guidance, and treatment for this condition.

Section 5 - Tips on Finding and Choosing a Doctor

One of the most important decisions confronting patients who have been diagnosed with a serious medical condition is finding and choosing a qualified physician who will deliver high-level, quality medical care in accordance with curently accepted guidelines and standards of care. Finding the "best" doctor to manage your condition, however, can be a frustrating and time-consuming experience unless you know what you are looking for and how to go about finding it. This section of your Guidebook offers important tips for how to find physicians as well as suggestions for how to make informed choices about choosing a doctor who is right for you.

Section 6 - Directory of Organizations

This section of your *Guidebook* is a directory of select disease organizations and support groups that are in the business of helping patients and their families by providing access to information, resources, and services. Many of these organizations can answer your questions, enable you to network with other patients, and help you find a doctor in your geographical area who specializes in managing your condition.

Ordering Full-Text Articles

After reviewing your *MediFocus Guidebook*, you may wish to order the full-text copy of some of the journal article citations that are referenced in the *Guidebook*. There are several options available for obtaining full-text copies of journal articles, however, with the exception of obtaining the article yourself by visiting a nearby medical library, most involve a fee to cover the costs of photocopying, delivering, and paying the copyright royalty fees set by the individual publishers of medical journals.

This section of your *MediFocus Guidebook* provides some basic information about how you can go about obtaining full-text copies of journal articles from various fee-based document delivery resources.

Commercial Document Delivery Services

There are numerous commercial document delivery companies that provide full-text photocopying and delivery services to the general public. The costs may vary from company to company so it is worth your while to carefully shop-around and compare prices. Some of these commercial document delivery services enable you to order articles directly online from the company's web site. You can locate companies that provide document delivery services by typing the key words "document delivery" into any major Internet search engine.

National Library of Medicine's "Loansome Doc" Document Retrieval Services

The National Library of Medicine (NLM), located in Bethesda, Maryland, offers full-text photocopying and delivery of journal articles through its on-line service known as "Loansome Doc". To learn more about how you can order articles using "Loansome Doc", please visit the NLM web site at: http://www.nlm.nih.gov/pubs/factsheets/loansome_doc.html

Participating "Loansome Doc" Libraries: United States

In the United States there are approximately 250 medical libraries that participate in the National Library of Medicine's "Loansome Doc" document retrieval and delivery services for the general public. Please note that each participating library sets its own policies and charges for providing document retrieval services. To order full-text copies of articles, simply contact a participating "Loansome Doc" medical library in your geographical area and ask to speak with one of the reference librarians. They can answer all of your questions including fees, delivery options, and turn-around time.

Here is how to find a participating "Loansome Doc" library in the U.S. that provides article retrieval services for the general public:

- **United States** - Contact a Regional Medical Library at 1-800-338-7657 (Monday - Friday;

8:30 AM - 5:30 PM). They will provide information about libraries in your area with which you may establish an account for the "Loansome Doc" service.

- **Canada -** Contact the Canada Institute for Scientific and Technical Information (CISTI) at 1-800-668-1222 for information about libraries in your area.

International MEDLARS Centers

If you reside outside the United States, you can obtain copies of medical journal articles through one of several participating International Medical Literature Analysis and Retrieval Systems (MEDLARS) Centers that provide "Loansome Doc" services in over 20 major countries. International MEDLARS Centers can be found in some of these countries: Australia, Canada, China, Egypt, France, Germany, Hong Kong, India, Israel, Italy, Japan, Korea, Kuwait, Mexico, Norway, Russia, South Africa, Sweden, and the United Kingdom. A complete listing of International MEDLARS Centers, including locations and telephone contact information can be viewed at: http://www.nlm.nih.gov/pubs/factsheets/intlmedlars.html

2 - The Intelligent Patient Overview

RENAL CELL CARCINOMA

Introduction to Renal Cell Carcinoma

The kidneys are two bean-shaped organs, one located on each side of the spine, that are an integral part of the urinary system. The primary function of the kidneys is to filter and cleanse the blood by removing excess water, salt, and waste products. The kidneys produce urine which then drains from the kidneys through two tubes known as the right and left *ureters* into the *urinary bladder*. The accumulation of urine in the bladder brings on the urge to urinate and, thereby, eliminate the waste products filtered by the kidneys. Urine leaves the body through a tube called the *urethra*.

In addition to filtering and cleansing the blood of waste products, the kidneys perform two additional vital functions:

- Regulation of blood pressure - The kidneys excrete excess sodium (salt) from the body that helps prevent high blood pressure (*hypertension*) from developing. The kidneys also help to regulate blood pressure by producing an enzyme called *renin*. When a person's blood pressure falls below normal levels (*hypotension*), the kidneys produce and pump renin into the bloodstream which raises the blood pressure by activating a mechanism known as the *renin-angiotensin-aldosterone* system.

- Secretion of hormones - The kidneys produce a hormone called *erythropoietin* that stimulates the production of red blood cells (*erythrocytes*) in the bone marrow. The kidneys also help to promote the growth of strong, healthy bones by regulating the levels of calcium and phosphorus in the bloodstream.

Renal (Kidney) Tumors

Tumors can grow in almost any organ in the body. Tumors that develop and grow in the kidneys are known as *renal tumors*. Renal tumors can be either benign (non-cancerous) or malignant (cancerous). Examples of benign kidney tumors include:

- Renal oncocytomas
- Renal angiomyolipomas

Examples of malignant renal tumors include:

- Transitional cell carcinoma
- Wilms' tumor

- Renal sarcomas
- Renal cell carcinomas

Renal Cell Carcinoma

According to the American Cancer Society, renal cell carcinoma (RCC) is the most common type of malignant kidney tumor and accounts for more than 90% of all renal tumors. The incidence of RCC has been steadily rising with approximately 51,000 newly diagnosed cases and nearly 13,000 deaths reported in 2007 in the United States. Renal cell carcinoma is more common in men than women with about 60% of cases occurring in men and about 40% in women. Most cases of renal cell carcinoma occur in adults between 50 to 70 years of age. Children and adolescents only rarely develop renal cell carcinoma.

Renal cell carcinoma represents about 3% of all cancers in adults and accounts for about 2% of all cancer deaths. In about 50% of patients who are diagnosed with renal cell carcinoma, the cancer is confined (localized) to the kidney. Locally invasive disease, where the cancer has spread outside the kidney, is present in about 25% of newly diagnosed patients. The remaining 25% of newly diagnosed patients have metastatic RCC where the cancer has already spread to distant sites such as the lungs or bones.

There are several types of RCC that can be differentiated on the basis of the morphology (appearance) of the cancer cells under a microscope. Approximately 75% of patients have the *clear cell* type of RCC. Other less common types of renal cell carcinoma include:

- *Papillary*
- *Chromophobe*
- *Collecting duct*
- *Sarcomatoid*
- *Medullary*
- A category called "Unclassified" RCC

Cancer cells, like other cells in the body, have a structure called the *nucleus* that stores the DNA genetic code of the cell. By examining the nucleus of a renal cancer cell under a microscope and comparing it to a normal kidney cell, doctors can determine to what degree or extent the nucleus of the renal cancer cell looks to be abnormal. Using this technique, doctors assign a *grade* to the renal cancer cells based on a numerical scale ranging from 1 to 4. This is known as the Fuhrman Grade. For example, renal cancer cells whose nuclei resemble those of normal kidney cells are assigned a grade of 1. In general, the lower grades (1 and 2) of renal cell carcinoma grow more slowly and tend to have a better prognosis (outlook) than the higher grades (3 or 4).

Risk Factors for Renal Cell Carcinoma

A *risk factor* is anything that increases a person's chances of getting a particular disease such as cancer. Researchers have identified a variety of risk factors for renal cell carcinoma (RCC). These risk factors include:

- Cigarette smoking - The risk of RCC increases with the number of cigarette packs smoked per year. Men who smoke appear to be at much higher risk for developing RCC than women who smoke.

- Obesity - Numerous studies have reported a positive correlation between severe obesity and RCC. Severe obesity appears to be a greater risk factor for RCC in women than in men.

- Kidney stones - Men with a history of kidney stones appear more likely to develop RCC than women.

- Occupational exposure - People who work in certain industries that involve exposure to iron, steel, and petroleum products appear to be at higher risk for developing RCC.

- Chemical exposure - Workplace exposure to certain chemicals and substances such as asbestos, cadmium, some herbicides, and organic solvents (e.g., benzene, trichloroethylene) also appear to increase the risk for developing RCC.

- Hypertension - Several case-control studies have been published which suggest that people with high blood pressure (*hypertension*) may be at increased risk for developing RCC. A class of antihypertensive drugs called *thiazides* may also increase the risk of developing RCC.

- von Hippel-Lindau Syndrome - A genetic disorder where patients lack the "VHL gene" resulting in the abnormal growth of blood vessels in some parts of the body. Patients with this syndrome have almost a 100% lifetime risk of developing renal cell carcinoma of clear cell histology. Recently, it has been demonstrated that normal VHL gene function is required to inhibit the overproduction of specific genes that promote *angiogenesis* (new blood vessel formation) in patients with clear cell renal cell carcinoma.

- Sporadic VHL gene mutations can also be found in patients with sporadic renal cell cancers of clear cell histology.

- Gender - RCC develops more frequently in men than in women with about 60% of all cases occurring in men.

- Family history - A family history of RCC increases a person's chances of developing this condition.

Diagnosis of Renal Cell Carcinoma

Signs and Symptoms of Renal Cell Carcinoma

It is not unusual for patients with early kidney cancer to have no clinical signs or symptoms of the disease. In fact, many cases of kidney cancer are discovered incidentally while the patient is being evaluated for another, sometimes unrelated, condition. Incidentally discovered kidney tumors tend to be smaller and are usually confined to the kidney, thereby, improving the chances for a successful treatment outcome.

In general, when clinical signs and symptoms of kidney cancer do occur, they tend to be associated with larger size tumors that may have already spread outside the kidney. The most common signs and symptoms of renal cell carcinoma (RCC) include:

- Hematuria - the presence of blood in the urine
- A palpable mass or lump in the abdomen
- Bilateral swelling (edema) of the lower extremities
- Low back pain not associated with a back injury
- Flank pain
- Lymphadenopathy - swollen, enlarged lymph nodes particularly in the area of the groin
- Unintentional weight loss of greater than 10% body weight
- Persistent fever not associated with an infection

Imaging Studies for Renal Cell Carcinoma

The initial step in the medical evaluation of patients with suspected kidney cancer is a complete medical history followed by a thorough physical examination. The medical history will focus on the risk factors for renal cell carcinoma (RCC) and the physical examination will focus on any signs and symptoms that may be associated with kidney cancer. If your doctor suspects that you may kidney cancer, he/she will order one or more imaging (radiological) studies to determine if a kidney tumor is present. The two most imaging studies used in diagnosing kidney cancer include:

- Computed tomography
- Magnetic resonance imaging

Computed Tomography

Computed tomography (CT scan) is an imaging technique that produces detailed cross-sectional images of an area of the body, such as the kidneys, by taking multiple pictures or "slices" as the CT machine rotates around the area of the body being studied. The individual pictures (images) are then fed into a computer that combines these images into a detailed cross-sectional composite image that doctors can study to look for tumors or other abnormalities.

In order to produce a high-quality CT scan, a substance called a *radiocontrast agent* or "dye" is injected intravenously which travels through the bloodstream to the kidneys and helps to outline the structure of the kidney when the CT scan is performed.

More recently, a newer type of CT scan known as *multidetector CT* has become available. Using this imaging technique, doctors can not only detect a kidney tumor but they can also gain valuable information regarding the relationship of the tumor to the surrounding tissues and organs. Multidetector CT is a valuable imaging modality that can help surgeons plan the operation to remove the kidney tumor without causing injury to the surrounding tissue and organs.

Magnetic Resonance Imaging

Magnetic resonance imaging (MRI) is a novel imaging technique that uses radiowaves and strong magnets, instead of X-rays, to produce a very detailed image of tissues and organs in the body. MRI is often used instead of a CT scan for imaging studies in patients who are either allergic to the radiocontrast dye that is used in CT imaging or patients with poor kidney function (renal insufficiency). The accuracy of MRI is considered to be equivalent to CT scan for the detection of kidney cancer.

Other Imaging Studies for Renal Cell Carcinoma

CT and MRI are the two primary imaging modalities that are used for the diagnosis of kidney cancer. If a kidney tumor is found by either of these imaging modalities, your doctor will also want to order several other imaging studies that can provide useful information about the tumor:

- Chest X-ray - This test is done to determine if the cancer has spread to the lungs.
- Bone scan - This test is done to determine if the cancer has spread to the bones.
- Angiography - This is a special imaging technique that outlines the blood vessels that supply the tumor. Angiography may be useful for both diagnosing a kidney tumor as well as for planning surgery for removing the tumor.

Laboratory Evaluation

As part of a complete diagnostic "work-up" for renal cell carcinoma, your doctor will also obtain a urine and blood sample and submit them for a variety of laboratory tests which usually include:

- Urinalysis - urine sample is checked under a microscope for the presence of red blood cells (microscopic hematuria)
- Urine cytology - urine sample is checked under a microscope to look for the presence of cancer cells
- Blood tests - laboratory testing of blood sample usually includes:
    - complete blood count
    - measurement of blood calcium levels - the levels of calcium in the bloodstream are usually elevated in patients with RCC (*hypercalcemia*)
    - check for presence of anemia - many patients with RCC have lower than normal red

blood cell counts (*anemia*)
- serum enzyme levels - certain enzymes, such as liver enzymes and alkaline phosphatase, may be elevated in patients with RCC

Staging of Renal Cell Carcinoma

One the diagnosis of renal cell carcinoma has been established, the next step is to determine the *stage* of the disease. *Staging* is the process used by doctors to determine how far the cancer has spread in the body. Staging of the disease is very important because it helps doctors develop an appropriate treatment plan and is also useful in predicting the outcome (*prognosis*).

The TNM classification system, originally developed in 1978 and revised in 1997 by the American Joint Committee on Cancer and the International Union against Cancer, is the staging system most commonly used in the United States for staging patients with RCC. The TNM classification system groups patients into one of four stage groupings (Stages I, II, III, or IV) on the basis of the following variables:

- T = Tumor Size - Refers to the size of the tumor and the extent of local spread of the tumor to nearby tissue.
    - tumor size and extent of local tumor invasion is graded on a numerical scale ranging from 0 to 4
    - in general, higher T values reflect larger tumors and/or more extensive invasion of tissues near the kidney
- N = Lymph Node Involvement - Indicates whether the tumor has spread to the regional lymph nodes nearby the kidney and the number of lymph nodes that have been affected. The extent of lymph node involvement is graded on a numerical scale ranging from 0 to 2 as follows:
    - an N score of "x" indicates that the regional lymph nodes cannot be assessed
    - an N score of "0" indicates that the tumor has not spread to any regional lymph nodes
    - an N score of "1" indicates that the tumor has spread to only one regional lymph node
    - an N score of "2" indicates that the tumor has spread to more than one regional lymph node
- M = Metastasis - Indicates whether the cancer has spread beyond the kidney to distant organs (e.g., lungs or bones) or to distant lymph nodes far away from the kidney:
    - an M score of "0" is assigned if the cancer has not spread to distant sites or distant lymph nodes
    - an M score of "1" reflects metastasis to distant sites or distant lymph nodes

After staging has been completed, the individual T, N, and M scores are combined to determine

the stage grouping of the disease. Patients are then assigned to one of the following four stage groupings:

- Stage I
- Stage II
- Stage III
- Stage IV

Stage I

- Earliest stage of RCC
- Tumor is confined to the kidney
- Tumor size is less than 7.0 cm in diameter and is limited to the kidney
- No regional lymph nodes are affected
- No distant metastases

Stage II

- Tumor is still confined to the kidney
- Stage II is a more advanced stage than Stage I because the tumor is larger than 7.0 cm in diameter
- No regional lymph nodes are affected
- No distant metastases

Stage III

- Stage III is a more advances stage than Stage II
- size of the tumor may either be less than or greater than 7.0 cm in diameter
- Stage III includes:
    - any tumor that has spread to only one regional lymph node but there is no evidence of distant metastases
    - any tumor that has not affected any regional lymph nodes but has invaded the adrenal glands, renal veins, the fatty tissue around the kidney, or the large vein leading from the kidney to the heart called the *vena cava*

Stage IV

- Stage IV is the most advanced stage of RCC
- Includes any tumor that has spread to two or more regional lymph nodes
- Includes any tumor that has spread beyond the fibrous connective tissue capsule that surrounds the kidney called *Gerota's fascia*.
- Includes any tumor that spread to distant organs or to distant lymph nodes that are far away from the kidney

Treatment Options for Renal Cell Carcinoma

In general, the treatment options for patients with renal cell carcinoma (RCC) include the following:

- Surgery
    - radical open nephrectomy
    - partial open nephrectomy
- Radiofrequency Ablation
- Immunotherapy
    - interleukin -2 (high-dose or low-dose)
    - interferon-alpha
- Other Treatment Modalities
    - radiation therapy
    - chemotherapy
- Experimental Therapies under Investigation

The Role of Surgery in Renal Cell Carcinoma

For over a century, surgery has remained the first-line treatment for patients with localized renal cell carcinoma (RCC). The surgical procedure to remove a kidney tumor is called a *nephrectomy*. Depending upon the extent of spread of the cancer (stage of the disease), surgeons may either perform a *radical nephrectomy* to remove the entire kidney or a *partial nephrectomy* during which only a portion of the kidney containing the tumor is removed.

Radical Nephrectomy

Radical nephrectomy is the most common type of surgery for renal cell carcinoma and is considered as the "gold standard" curative operation for patients with localized RCC. In performing a radical nephrectomy, the surgeon removes the whole kidney, the adrenal glands, and the fatty tissue (*perinephric fat*) that surrounds the kidney. In some cases, it may also be necessary to remove lymph nodes near the kidney by a surgical procedure known as *regional lymphadenectomy* in order to determine the extent of lymph node involvement.

There are two surgical options for performing a radical nephrectomy:

- Open nephrectomy
- Laparoscopic nephrectomy

Open Nephrectomy

The open radical nephrectomy is the more conventional or traditional procedure used by surgeons to remove the kidney. This technique involves creating an 8-12 inch incision in the abdomen to expose the kidney. The surgeon then removes the kidney (along with the adrenal glands and perinephric fat) under direct visual observation. Complications that may be associated with open radical nephrectomy include:

- Inadvertent injury to other organs near the kidney
- Accidental puncture of a lung
- Bleeding complications
- Wound infection
- Temporary decrease in kidney function
- Incisional hernia - failure of the abdominal incision to heal properly creates a weakness in the wall of the abdomen leading to the protrusion of the intestine or other abdominal organs through the defect.

Open radical nephrectomy remains the preferred surgical technique for renal cell carcinoma and is used exclusively under the following circumstances:

- Patients with very large kidney tumors
- If the cancer has spread to major veins or the vena cava
- If the cancer has spread to one or more regional lymph nodes

Laparoscopic Radical Nephrectomy

Since 1990, a newer surgical technique called *laparoscopic radical nephrectomy* has become available. Also known as "minimally invasive surgery", the laparoscopic technique involves creating 3 or 4 small incisions in the abdomen to access the kidney (in contrast to one large 8 to 12 inch incision that is used in the conventional open radical nephrectomy procedure). The surgeon then inserts a *laparoscope* - a tube-like instrument equipped with a camera - to guide small surgical instruments to the area to remove the kidney. In general, laparoscopic radical nephrectomy is a surgical option for patients with localized RCC where the tumor has not spread beyond the fibrous tissue that surrounds the kidney (*Gerota's fascia*) and without evidence of regional lymph node involvement or distant metastases.

The advantages of laparoscopic nephrectomy compared to conventional open nephrectomy include:

- Less postoperative pain
- Shorter duration of hospitalization
- Earlier return to work and daily activities
- Equivalent treatment outcome results
- More favorable cosmetic outcome due to smaller incisions that are used

The potential risks and complications of laparoscopic nephrectomy are similar to those outlined above for conventional open nephrectomy. In addition, if the surgeon encounters difficulties while performing a laparoscopic nephrectomy, conversion to an open nephrectomy may be necessary.

Patients with renal cell carcinoma who are offered the option of a laparoscopic nephrectomy should carefully query the surgeon about their training and experience with this technique before consenting to undergo the procedure. Although this general principle also applies to open nephrectomy, patients need to keep in mind that the laparoscopic procedure is a newer technique and that the outcome can be influenced to a greater extent by the surgeon's training and experience.

Partial Nephrectomy

In some cases, patients with renal cell carcinoma may be treated with a surgical procedure called *partial nephrectomy* also known as "nephron-sparing surgery". Unlike a radical nephrectomy where the entire kidney is removed, a partial nephrectomy involves removing only a portion of the kidney that contains the tumor. The primary advantage of a partial nephrectomy is that it enables the patient to retain some kidney function and may eliminate the need for immediate dialysis.

A partial nephrectomy is the surgical option of choice in the following circumstances:

- Patients with bilateral RCC where the cancer has affected both kidneys
- Patients with RCC affecting one kidney who do not have a second kidney either because they may have been born with only one kidney or the second kidney had been previously removed.
- Patients with RCC affecting one kidney who have a second kidney but the function of the second kidney is severely and irreversibly impaired

Some surgeons also prefer to perform a partial nephrectomy, instead of a radical nephrectomy, in patients with RCC affecting one kidney if the patient has another underlying medical condition that may impair the function of the second (non-cancerous) kidney in the future. Examples of some of these underlying medical conditions include:

- History of kidney stones
- Renal artery stenosis - a narrowing or blockage of the renal artery that can cause high blood pressure and damage to the kidney
- Pyelonephritis - bacterial infection of the kidney
- Nephrosclerosis - hardening (sclerosis) of the kidney usually due to hardening (atherosclerosis) of the kidney arteries
- Von Hippel-Lindau Disease - a rare genetic disorder characterized by the abnormal growth of tumors in certain parts of the body such as the central nervous system, adrenal glands, kidneys, and pancreas
- Diabetes

In general, many surgeons also consider a partial nephrectomy to be a viable option to radical nephrectomy for patients with renal cell carcinoma who meet the following criteria:

- The cancer affects only one kidney
- The size of the tumor is less than 4.0 cm in diameter
- The patient has a normally functioning second kidney
- The patient has no underlying medical conditions that may impair the function of the second kidney in the future.

Studies from the Memorial Sloan-Kettering Cancer Center and the Mayo Clinic have shown that elective partial nephrectomy is as effective as radical nephrectomy for controlling renal cell carcinoma as measured by cancer-free survival time. Moreover, significantly fewer patients who had undergone elective partial nephrectomy developed renal insufficiency (elevated serum creatinine levels) with long-term follow-up of 10 years as compared to patients who had undergone radical nephrectomy.

Radiofrequency Ablation for Renal Cell Carcinoma

In recent years, a procedure called *image-guided radiofrequency ablation* has received considerable attention as a treatment option to nephrectomy in select patients with renal cell carcinoma (RCC). Radiofrequency (RF) ablation is a technique that delivers a high-frequency (400-500 kHz) alternating current directly into a tumor by means of a special thin needle called a radiofrequency (RF) electrode. Heat that is generated at the tip of the RF electrode (60 to 100 degrees Celsius) when applied to the tumor for about 5 minutes results in almost instantaneous destruction of the tumor. Using modern imaging techniques, such as ultrasound, CT, or MRI, the RF electrode can be placed directly into a kidney tumor with a high degree of precision and accuracy. Both tumor size and tumor location are major factors in predicting the successful outcome of RF ablation. In general, RF ablation is not used to treat kidney tumors that are larger than 5.0 cm or tumors that are located at or near the center of the kidney.

Although currently nephrectomy remains the first-line treatment for renal cell carcinoma, in recent years RF ablation has gained more attention as a viable treatment option for select patients because it is less expensive than nephrectomy and is associated with far fewer complications. In general, RF ablation may be considered as a viable treatment option for the following select groups of patients with RCC:

- Elderly patients who may not be able to tolerate nephrectomy
- Patients with von Hippel-Lindau disease
- Patients with only one kidney
- Patients with RCC involving both kidneys
- Patients with uncontrolled hematuria (blood in the urine)
- Patients who develop recurrence of RCC after undergoing nephrectomy

Cryosurgical Ablation of Renal Cell Carcinoma

Cryosurgical ablation, also known as *cryoablation*, is a relatively new surgical technique that uses cold energy to destroy tissue. It is most often employed to destroy (ablate) solid tumors, particularly tumors arising in the lung, liver, breast, prostate and kidney. Most often, cryoablation is performed *percutaneously* by creating an incision through the skin and then advancing hollow needles, called *cryoprobes*, through the skin into the target tissue containing the tumor. In some cases, surgeons may use a *laparoscopic* (minimally invasive) or an *open* surgical approach to advance the cryoprobes to the target tissue. Once the cryoprobes are in place, cooled gases and fluids from an external freezer unit are circulated through the cryoprobes to destroy the target tissue.

For select patients with renal cell carcinoma (RCC), cryoablation has emerged as an alternative treatment option to partial nephrectomy with encouraging results. Cryoablation is particularly well-suited for the treatment of small (< 4cm) localized renal masses, especially in elderly patients with significant co-morbidities. In an article published in the July 2007 issue of *Cancer Control* (Volume 14; Issue 3, pp. 211-217), researchers from the Cleveland Clinic reported on the outcome of cryoablation of small renal masses in 320 patients with RCC. In this series of patients, cryoablation was performed either via an open or laparoscopic approach or by the percutaneous technique. The range of mean follow-up after cryoablation was 6 to 72 months, including a series of 48 patients with a minimum 5-years follow-up. The authors reported that cryoablation for small, localized renal masses was well-tolerated by most patients and was associated with a low complication rate. The most common complication noted was pain or parasthesia (a sensation of tingling or numbness of the skin) at the site of insertion of the cryoprobes. The cancer-specific survival rate among this series of 320 patients was 97% to 100% and the overall patient survival rate was 82% to 90%.

The Role of Immunotherapy in Renal Cell Carcinoma

Immunotherapy with *cytokines* has been the mainstay of treatment for metastatic (Stage IV) renal cell carcinoma (RCC) since the early 1980s. Cytokines are special proteins produced by white blood cells that help the body's immune system destroy foreign microorganisms such as bacteria and viruses.

In the 1950s, researchers discovered a class of cytokines called *interferons* that help the body to eliminate viruses. Researchers have also learned that cytokines can activate the body's natural immune system to help destroy certain types of tumors. This led to a boost in research in a special field of medicine called "cancer immunology" to further develop and refine methods for using the body's natural immune system to destroy tumors.

Since the discovery of interferons in the 1950s, other cytokines with anti-tumor properties have been discovered including *interleukins* and *tumor necrosis factor*. The two most common cytokines used as immunotherapy for metastatic RCC are *interleukin-2* and *interferon-alpha*.

Interleukin-2

High-dose interleukin-2 (IL-2) was granted approval by the U.S. Food and Drug Administration (FDA) for the treatment of metastatic (Stage IV) RCC in 1992. Approval of IL-2 was based on the results of 7 clinical trials involving 255 patients that demonstrated an overall objective response rate of 15%. Seventeen of the 255 patients who were treated with IL-2 showed a complete response to IL-2 immunotherapy while 20 other patients showed a partial response. Most of the patients who achieved a complete response to IL-2 immunotherapy appeared to have been cured of the disease.

High-dose interleukin-2 is usually administered by intravenous (IV) infusion in an outpatient setting although it may also be administered subcutaneously (injected under the skin). Side-effects of high-dose IL-2 immunotherapy may include:

- Fluid retention
- Metabolic acidosis - abnormally high levels of acids in the bloodstream
- Azotemia - abnormally high levels of urea and other nitrogen-containing compounds in the bloodstream
- Oliguria - low production of urine
- Hypotension - low blood pressure
- Arrhythmias - irregular heart beats
- Pulmonary edema - accumulation of fluid in the lungs
- Risk of stroke and heart attack
- Liver dysfunction
- Dermatitis - skin rashes
- Psychosis
- Fever
- Chills
- Rashes
- Muscle pain
- Joint pain

Interleukin-2 can also be administered at low-doses usually as daily injections underneath the skin 5 days a week on a continuing basis. There is no difference in the percentage of objective responses (i.e., tumor shrinkage) between high-dose IL-2 and low-dose IL-2 therapy nor is there a difference in overall patient survival. The side effects observed with low-dose IL-2 are, however, less severe compared with high-dose IL-2 and may include:

- Fever
- Chills
- Rashes
- Muscle pain
- Joint pain

Interferon-Alpha

Interferon-alpha has been studied extensively as a novel treatment for metastatic renal cell carcinoma since the 1980s. In general, most of the clinical studies have demonstrated that interferon-alpha only has a modest effect on metastatic RCC with an overall response rate ranging from 10% to 20%. Some of the larger clinical trials, involving 40 or more patients, reported overall response rates ranging from 8% to 29% but most of these responses were partial and short-lived lasting about 6-months. Only about 2% of patients with metastatic RCC experience a complete response to interferon-alpha. Positive responses to interferon-alpha usually occur only after 2 to 12 months of treatment.

Interferon-alpha is usually administered in doses of 5 to 20 MU per day, 3 to 5 days a week, for a prolonged time interval. A new formulation called *pegylated interferon* has recently become available. Pegylated interferon is administered only once a week instead of up to 5 times a week as is the usual dosage schedule for the "non-pegylated" form of interferon-alpha. In comparison with the older, "non-pegylated" form of interferon-alpha, pegylated interferon is more convenient in terms of dosing schedule, is associated with fewer side-effects, and shows promise in improving the overall response rate in patients with metastatic renal cell carcinoma.

In some cases, patients with metastatic RCC may receive combination cytokine immunotherapy with both interferon-alpha and interleukin-2. In other cases, combination therapy with interferon-alpha and a chemotherapeutic drug such as 5-fluorouracil (5-FU) or vinblastine may be used.

Side-effects of interferon-alpha therapy may include:

- Flu-like symptoms - fever, chills, muscle aches, fatigue
- Weight loss
- Altered sensation of taste
- Depression
- Anemia
- Reduced white blood cell counts
- Abnormal liver function tests

Other Treatment Modalities for Renal Cell Carcinoma

Radiation Therapy

External-beam radiation therapy is a treatment modality that uses focused, high-energy radiation to kill cancer cells. Although radiation therapy is a primary treatment for many types of tumors, it does not play a major role in the treatment of renal cell carcinoma because kidney cancer cells are not very sensitive to radiation. Radiation therapy may be considered in patients with metastatic RCC who have developed painful bone metastasis. Radiation therapy may also be used to temporarily alleviate symptoms such as pain.

Chemotherapy

Chemotherapy refers to the use of drugs callled *antineoplastic (anticancer) agents* to destroy or stop the growth of cancer cells. Although chemotherapy is a mainstay of treatment for many types of solid tumors, it does not play a major role in the treatment of renal cell carcinoma because the kidney cancer cells are highly resistant to most antineoplastic agents. To date, no single antineoplastic agent when used alone (*monotherapy*) has proven to be effective for the treatment of advanced RCC. Combination chemotherapy with two or more anticancer drugs has also not proven to be highly effective for the treatment of advanced renal cell carcinoma. Combination chemotherapy with 5-fluorouracil and gemcitabine has been reported to benefit some patients. Another chemotherapeutic agent that has benefited some patients with metastatic RCC is Capecitabine (Xeloda). As mentioned previously, in some cases, chemotherapy may be combined with interferon-alpha immunotherapy for the management of metastatic RCC.

Targeted Therapies for Renal Cell Carcinoma

Angiogenesis is a normal physiological process that refers to the growth of new blood vessels from pre-existing vessels. Researchers have recently discovered that angiogenesis is a key factor that enables tumors to grow and metastasize (spread). Without a rich blood supply, tumors cannot grow beyond a certain size and, eventually, the tumor cells will die due to the lack of oxygen and other essential nutrients.

Researchers have also discovered that tumors can induce the formation of new blood vessels (i.e., angiogenesis) by several different molecular pathways. One pathway by which tumors can sprout new blood vessels is by taking advantage of substances called *growth factors*. Examples of these growth factors include *vascular endothelial growth factor* (VEGF), *fibroblast growth factor* (FGF), and *platelet-derived growth factor* (PDGF). Tumor angiogenesis can also be promoted by another recently discovered pathway known as the *Mammalian Target of Rapamycin* (mTOR).

The recent discovery of these molecular pathways that tumors can use to produce new blood vessels has led to the development of "targeted" molecular therapies for a variety of solid tumors, including RCC, with drugs called *angiogenesis inhibitors*. These drugs inhibit tumor angiogenesis by blocking either the production of angiogenesis-promoting growth factors or by inhibiting the mTOR pathway. By depriving the tumor of its blood supply, the cancer cells die and, eventually, the tumor will shrink in size. In recent years, several important drugs have emerged as novel "targeted" therapies for RCC including:

- Sorafenib (Nexavar)
- Sunitinib (Sutent)
- Bevacizumab (Avastin)
- Temsirolimus (Torisel)

Sorafenib

- Approved by the U.S. Food and Drug Administration (FDA) for the treatment of metastatic renal cell carcinoma in December 2005.

- Inhibits tumor angiogenesis by interfering with the vascular endothelial growth factor (VEGF) pathway.

- Sorafenib may be used alone or in combination with intereron-alpha.

- Most commonly reported side-effects during clinical trials included:

    - diarrhea
    - skin rashes
    - fatigue
    - high blood pressure

- Sorafenib is currently used as a second-line drug for metastatic renal cell carcinoma, although it may be used as primary therapy in select patients.

Sunitinib

- Approved by the FDA for the treatment of metastatic renal cell carcinoma in January 2006.

- Inhibits tumor angiogenesis by interfering with the vascular endothelial growth factor (VEGF) pathway.

- Most commonly reported side-effects during clinical trials included:
    - diarrhea
    - fatigue
    - nausea
    - vomiting
    - high blood pressure
    - hypothyroidism (underactive thyroid gland)
    - cytopenias (a deficiency in certain blood cell elements such as red blood cells, white blood cells, and/or platelets).
- Sunitinib is currently considered as a second-line treatment for patients with metastatic renal cell carcinoma who do not respond to treatment with interferon-alpha.

Bevacizumab

- Approved in Europe for the treatment of metastatic renal cell carcinoma and is currently awaiting FDA approval in the United States.
- Bevacizumab is a recombinant human monoclonal antibody which specifically binds and neutralizes vascular endothelial growth factor (VEGF) and, thereby, inhibits tumor angiogenesis.
- Most commonly observed side-effects during clinical trials included:
    - fatigue
    - high blood pressure
    - asthenia (an abnormal loss of strength)
    - proteinuria (an excessive amount of proteins, such as albumin and globulin, in the urine which usually indicates a kidney disorder).
- Bevacizumab may be used alone or in combination with interferon-alpha.

Temsirolimus

- Approved by the FDA for the treatment of metastatic renal cell carcinoma in May 2007.
- Temsirolimus inhibits tumor angiogenesis by interfering with the mammalian target of rapamycin (mTOR) pathway.
- Most commonly reported side-effects during clinical trials included:
    - skin rashes
    - peripheral edema (swelling of the hands/feet)
    - hypercalcemia (presence of abnormally high levels of calcium in the blood, suggestive of a disorder of bone metabolism)
    - hyperlipidemia (presence of excessive fatty compounds, called *lipids*, in the

bloodstream).

Emerging Targeted Therapies

Researchers are continuing to investigate other targeted therapies for the treatment of patients with metastatic renal cell carcinoma. Some of the newer emerging targeted therapies that are currently under investigation include:

- Axitinib
- Cediranib
- Pazopanib
- Volociximab
- Everolimus

Tumor Vaccines

Tumor vaccines are emerging as a major area of investigation for the immunotherapy of metastatic renal cell carcinoma. The goal of tumor vaccination is to stimulate the body's natural immune system to recognize and destroy the tumor. More specifically, tumor vaccines are designed to stimulate specific cells of the immune system such as *cytotoxic T-lymphocytes* and *CD4+ T-helper cells* to mount an effective immune response against the tumor.

One approach to developing tumor vaccines involves the use of *gene-modified vaccines*. This method involves removing tumor cells from the patient and growing the cells in the laboratory. Special genes that stimulate the production of cytokines and other immune-stimulating proteins are then introduced into the tumor cells. The tumor cells containing the new immune-stimulating genes are then injected back into the patient as a vaccine to stimulate the body's immune system to recognize and destroy the tumor.

Another approach being investigated for the development of a tumor vaccine for metastatic RCC involves the use of special cells called *dendritic cells*. Dendritic cells are found throughout the body and are especially abundant in the skin, lungs, and gastrointestinal tract. Dendritic cells are unique "antigen-presenting" cells that can activate cytotoxic T-lymphocytes and other components of the immune system to mount a potent immune response against foreign microorganisms as well as tumors.

To date, none of the tumor vaccine approaches have proven to be very effective for the treatment of metastatic renal cell carcinoma. Some patients, however, have experienced a regression of metastatic tumors. This is encouraging because it demonstrates "proof of concept" that, at least in some patients, tumor vaccines can stimulate the immune system to destroy kidney tumors. Tumor vaccines continue to be an area of extensive research interest in hopes of developing more effective vaccines and, thereby, improving survival rates for patients with metastatic RCC.

Allogeneic Stem Cell Transplantation

Another approach being investigated for the treatment of metastatic renal cell carcinoma is called

allogeneic stem cell transplantation. This is a type of immunotherapy that uses stem cells obtained from a donor and infused into the recipient (patient) to boost the patient's immune response to recognize and destroy the tumor. Allogeneic stem cell transplantation was first used as a treatment for cancer in the late 1960s and is currently being used to treat a variety of cancers.

The specific type of allogeneic stem cell transplantation being investigated for the treatment of metastatic RCC is known as a *non-myeloablative transplant*. It is also sometimes called a "reduced-intensity transplant" or "mini-transplant". A non-myeloablative transplant is less toxic (less side-effects) than the more traditional *myeloablative stem cell transplant* and may be used for patients who otherwise may not be able to tolerate a myeloablative transplant procedure.

In general, the following procedure is used in performing a non-myeloablative transplant:

- Stem cells are obtained from either the bone marrow or peripheral blood of a suitable donor whose tissue-type closely matches that of the recipient (patient). For patients with RCC, the donor and recipient tissue-type (HLA antigens) must be an "exact match" and, for this reason, stem cells must be obtained from an HLA identical sibling. This limits the non-myeloablative transplant procedure to only about 25% to 30% of patients with metastatic RCC who have an HLA identical sibling.

- The transplant recipient is treated with a reduced-intensive "conditioning" regimen of chemotherapeutic drugs such as cyclophosphamide and fludarabine for one-week prior to the transplant procedure.

- The donor's stem cells, known as the "allograft" are then transplanted into the patient by intravenous infusion.

- The patient is treated with anti-rejection drugs, such as cyclosporine and methotrexate, to prevent the recipient's immune system from rejecting the allograft.

The basic underlying principle for using allogeneic stem cell transplantation to treat cancer is a phenomenon known as the "graft-versus-tumor effect". This principle was initially demonstrated in patients with leukemia where doctor's discovered that the donor's transplanted stem cells can eliminate residual leukemia cells that had not been previously destroyed by intensive chemotherapy.

A major concern with allogeneic stem cell transplantation is the development of *graft-versus-host-disease* (GVHD), whereby, the donor's engrafted immune cells attack and destroy the recipient's normal tissues such as the liver, gastrointestinal tract, and skin. This is the most serious and potentially fatal complication associated with allogeneic stem cell transplantation and patients must be monitored closely and treated immediately if signs and symptoms of GVHD occur.

Currently, allogeneic stem cell transplantation remains an investigational treatment for metastatic renal cell carcinoma. It is usually limited to patients with progressive metastatic RCC who have failed to respond to the more conventional cytokine-based immunotherapy. To date,

non-myeloablative allogeneic stem cell transplantation has only been tested in a small number of patients with metastatic RCC. Although some patients experienced complete regression of metastatic disease, unfortunately, most patients experienced only a partial response. Research is ongoing in hopes of improving both the safety and efficacy of non-myeloablative allogeneic stem cell transplantation for the treatment of patients with metastatic renal cell carcinoma.

Prognosis for Renal Cell Carcinoma

The term "prognosis" refers to the predicted outcome for patients with a particular disease or condition, such as cancer, after a particular treatment or intervention. A standard measure of prognosis for cancer patients is the 5-year survival rate which indicates the percentage of patients who survive for at least 5-years. The survival rate is based on statistics that doctors collect for various types of cancers and can be used to compare the effectiveness of various treatments.

Over the years, doctors have learned that the prognosis for cancer patients is influenced to a great extent by several important variables or factors. These variables include both individual *patient characteristics* as well as individual *tumor characteristics*. These individual patient and tumor characteristics, called *prognostic indicators*, can have a major influence on survival rates and are useful in helping doctors predict the likely outcome after treatment.

In the case of renal cell carcinoma, important prognostic indicators that can influence survival rates include:

- Clinical signs and symptoms of the disease
- Patient's performance status
- Stage of the disease at diagnosis

Clinical Signs and Symptoms

In general, patients with renal cell carcinoma (RCC) who develop clinical signs and symptoms such as significant weight loss, hematuria, pain, or enlarged lymph nodes have a lower 5-year survival rate that patients who are diagnosed with renal cell carcinoma but are asymptomatic and do not exhibit clinical signs and symptoms of the disease. Patients who develop clinical signs and symptoms of RCC usually have more advanced disease at the time of diagnosis and, therefore, have a lower 5-year survival rate. One study reported that the 5-year survival rate for patients with clinical signs and symptoms of renal cell carcinoma was 63% compared to 85% for patients who were diagnosed with RCC but were asymptomatic.

Performance Status

The term "performance status" is a subjective measure of a cancer patient's degree of impairment in performing tasks related to activities of daily living. A standard way of measuring a cancer patient's ability to perform ordinary tasks is the *Karnofsky Performance Scale*. This test rates a cancer patient's performance status on a numerical scale ranging from 0 to 100. In general, the higher the numerical score the better the ability of the patient to carry out routine activities of daily living. Conversely, the lower the numerical score, the greater the extent of functional impairment with respect to being able to perform ordinary tasks. In general, patients with RCC who have "good" performance status have a better prognosis than patients with "poor" performance status. One study reported that that the 5-year survival rate of RCC patients with "poor" performance statue was only 51% compared to 81% for RCC patients with "good" performance status.

Stage of Disease at Diagnosis

As mentioned previously, *staging* is the process used by doctors to evaluate the extent of spread of cancer in the body. As is the case for most solid tumors, the stage of the cancer at the time of diagnosis is the single most important prognostic indicator of survival for patients with renal cell carcinoma. According to the American Cancer Society, the overall combined 5-year survival rate for all patients with renal cell carcinoma is about 60%. It must be emphasized, however, that the 60% overall 5-year survival rate includes all patients irrespective of the stage of their disease. A more accurate picture of prognosis, however, emerges when survival rates are calculated on the basis of the stage of the disease. The estimated 5-year survival rates for patients with RCC using the TNM classification system as the basis of comparison is as follows:

Stage I

- Tumor size is less than 7.0 cm and the tumor is confined to the kidney
- Estimated 5-year survival time ranges from 70% to 90%
- Asymptomatic patients with a single, small (less than 4.0 cm) kidney tumor have a better than 90% 5-year survival rate

Stage II

- Tumor size is larger than 7.0 cm but the tumor is still confined to the kidney
- Estimated 5-year survival time ranges from 65% to 80%

Stage III

- This is a more advanced stage of RCC than Stage II
- Includes tumors that have either:

    - spread to a single regional lymph node;
    - spread to the fatty tissue that surrounds the kidney (*perinephric fat*)
    - spread to the adrenal glands
    - spread to the *vena cava* (the large vein leading from the kidney to the heart)

- Estimated 5-year survival rate for Stage III tumors that have spread to the perinephric fat or adrenal glands (but not the vena cava) ranges from 65% to 80%

- If the tumor has invaded the vena cava, the estimated 5-year survival rate ranges from 40% to 60%.

Stage IV

- Stage IV is the most advanced stage of RCC
- Stage IV includes tumors that have either:

    - spread beyond the fibrous tissue that surrounds the kidney (*Gerota's fascia*)
    - spread to more than one regional lymph node
    - spread to one or more distant lymph nodes far away from the kidney
    - spread to distant organs such as the brain, lungs, or bones

- Estimated 5-year survival rate for patients with Stage IV RCC is less than 10%.

The Role of Complementary and Alternative Therapies in Cancer

Complementary and Alternative Medicine: Definition of Terms

The National Center for Complementary and Alternative Medicine (NCCAM) defines complementary and alternative medicine as "a group of diverse medical and health care systems, practices, and products that are not presently considered to be a part of conventional medicine". The term **complementary medicine** refers to the use of CAM therapies in addition to or in conjunction with conventional mainstream treatments in an "integrative" approach to treatment. The term **alternative medicine**, on the other hand, refers to the use of CAM therapies as a substitute for or in place of conventional mainstream treatments.

Although the terms "complementary" and "alternative" are often used interchangeably by many people when referring to CAM therapies, health care professionals usually make a clear distinction between these two terms. In general, conventional physicians will keep an open mind and tend to support the use of "complementary" therapies in conjunction with standard mainstream treatments while they may resist suggestions for using "alternative" therapies as a substitute for conventional treatments. In fact, many cancer centers in the United States have incorporated select complementary therapies along with standard cancer treatments (e.g., chemotherapy, radiation therapy, surgery) in an emerging field of cancer care known as *integrative oncology*. It is important for patients and their families to keep in mind the very important distinction between the terms "complementary" and "alternative" when discussing the issue of CAM therapies with their health care provider in order to avoid confusion and misunderstandings and ensure effective patient-doctor communication.

The definition of CAM adapted by the NCCAM, which basically defines CAM as any treatment modality, philosophy, or product that falls outside the realm of conventional or standard medical care is well-suited for most Western countries where conventional, modern medicine is the prevailing or predominant health system adapted by the people who live in that culture. For example, conventional or standard treatments for cancer in most modern Western countries include chemotherapy, radiation therapy, biological therapy, and surgery. Other treatment modalities such as acupuncture, hypnotherapy, or the use of shark cartilage would be considered as being outside the realm of conventional medicine and falling under the general umbrella of CAM. The definition of CAM adapted by the NCCAM, however, is more problematic in countries or cultures where a particular form of CAM, such as Traditional Chinese medicine in China or Ayurvedic medicine in India, represent major health care systems that are recognized, accepted, and utilized by the general population of those countries or cultures.

Care vs. Cure

In discussing the role of CAM therapies for the management of cancer, it is important to differentiate between CAM therapies that purport to "cure" cancer as opposed to those therapies

that are used in palliative cancer care to provide relief from cancer-related symptoms and improve the patient's quality of life. Unlike some conventional cancer treatments that have been demonstrated to cure patients with certain types of cancers, currently there is a lack of sufficient scientific evidence to support the conclusion that any specific type of CAM modality can cure cancer. Patients who fail to draw a distinction between the "care versus cure" aspects of CAM therapies may delay seeking or may completely abandon potentially curative mainstream cancer treatments in hope that a particular CAM therapy may be a "magic bullet" for curing their cancer. On the other hand, complementary therapies have become an important aspect of palliative cancer care by helping cancer patients better cope with cancer-related symptoms and side-effects and, thereby, improving quality of life. In fact, many cancer centers in the United States and other Western countries have integrated complementary therapies into their mainstream treatment strategies for palliative cancer care in an emerging field of cancer practice known as *integrative oncology*.

Complementary Therapies for Cancer-Related Symptoms

Conventional cancer treatments such as chemotherapy, radiation therapy, and surgery are often associated with severe side-effects that can significantly impact the patient's quality of life and interfere with routine activities of daily living. In general, side-effects of conventional cancer treatments may include nausea/vomiting, fatigue, anxiety, depression, pain, sleep disturbances, loss of appetite, dry mouth, gastrointestinal disturbances, and peripheral neuropathy. Conventional treatments may not always be completely effective in relieving cancer-related symptoms and, in some cases, the treatments themselves may cause additional side-effects. Complementary therapies, when used in conjunction with conventional mainstream treatments can help patients better cope with cancer-related symptoms and side-effects and also improve physical and emotional well-being and overall quality of life.

Psychological Stress

The diagnosis of cancer is a life-altering event that may evoke feelings of anxiety, fear, depression, hopelessness, and severe psychological stress in many patients. Studies have shown that about 25% of cancer patients suffer from depression. Conventional treatments for anxiety, stress, and depression may involve the administration of anti-anxiety medications or antidepressants which may cause undesirable side-effects in some patients. Studies have shown that a variety of CAM therapies are useful for controlling anxiety and other mood disturbances when used in conjunction with conventional treatments. These include:

- Mind-body interventions - relaxation techniques, guided-imagery, meditation, hypnosis
- Acupuncture
- Massage therapy
- Music therapy

In general, patients with severe mood disturbances (e.g., panic attacks; suicide ideation) require immediate psychological evaluation and treatment to stabilize their acute condition before CAM therapies may be considered. For most patients with mild to moderate anxiety and mood disturbances, CAM therapies are a useful adjunct to conventional treatments for managing

psychological distress. Techniques such as mind-body interventions, acupuncture, and music therapy are generally safe when performed by qualified, experienced practitioners and can help cancer patients better cope with feelings of anxiety, fear, hopelessness, and depression. Although some herbs and dietary supplements (e.g., Kava Kava; St. John's Wort; Passionflower) have been reported to relieve anxiety and mood disturbances, some experts have discouraged the use of these products in cancer patients because they may interfere with drugs used to treat cancer (chemotherapeutic agents) and/or other medications that patients may be taking. Patients should discuss the risks and benefits of using any herbal medications/dietary supplements with their oncologist before taking any of these products, particularly if they are undergoing chemotherapy, radiation therapy, or surgery.

Cancer-Related Pain

Pain is a common symptom that can affect many cancer patients. Most often, the source of the pain is the tumor itself. Cancer-related pain may be caused by spread of the tumor to other tissues and organs or may result from compression of the tumor on a nerve or the spinal cord. In general, *acute* cancer-related pain is most responsive to conventional mainstream treatments which may involve medications (e.g., narcotic analgesics; steroids) or, in severe cases, (e.g., tumor causing spinal cord compression; tumor associated with abdominal obstruction), emergent surgery may be required to relieve the acute pain.

As a general rule, CAM therapies are usually not considered as a viable treatment option for the management of acute cancer-related pain. Once the acute pain has been brought under control by conventional treatment modalities, CAM therapies may be considered in the management of *chronic* cancer-related pain. A potential benefit of using CAM therapies in conjunction with conventional treatments for the management of chronic cancer-related pain is that they may reduce the dosage of conventional pain medications that may be required to achieve chronic pain control and, therefore, also potentially reduce the side-effects that may be associated with conventional pain medications.

A variety of CAM therapies, when used in conjunction with conventional treatments, may be beneficial for the management of cancer-related pain, including:

- Meditation
- Guided imagery
- Hypnosis
- Relaxation techniques
- Massage therapy
- Reflexology
- Acupuncture
- Yoga
- Aromatherapy

Some procedures that may be used for the diagnosis and treatment of some types of cancers may also be associated with pain. Examples include:

- Tissue biopsy - a piece of tissue is removed from the tumor and is examined under a microscope to determine if it is malignant or benign.

- Placement of a central line catheter that is used to administer chemotherapeutic agents and/or other medications
- Bone marrow aspiration
- Lumbar puncture (spinal tap)

A variety of CAM therapies, particularly mind-body techniques, have been found to be beneficial for controlling pain associated with cancer-related procedures (both diagnostic and therapeutic), especially in children with cancer, although they appear to be useful in adults as well.

Some cancer patients who undergo surgery to remove a tumor develop persistent neuropathic pain due to injury of nerves during the surgical procedure. In general, severe neuropathic pain may be difficult to control with conventional pain management treatment modalities. There is some evidence that acupuncture, when used in conjunction with conventional pain management strategies, may be effective for the management of persistent neuropathic pain that may develop in some patients after cancer surgery.

Nausea and Vomiting

Nausea and vomiting are relatively common side-effects in patients undergoing cancer chemotherapy. When used in conjunction with standard treatments, CAM therapies may offer patients additional relief from chemotherapy-induced nausea and vomiting. A 1998 National Institutes of Health (NIH) Consensus Conference concluded that there is clear evidence supporting the efficacy of acupuncture for controlling nausea and vomiting associated with cancer chemotherapy. Other CAM therapies that may help cancer patients better cope with chemotherapy-induced nausea and vomiting include:

- Acupressure
- Aromatherapy
- Hypnosis
- Guided imagery
- Music therapy
- Massage therapy

Other Cancer-Related Symptoms

There is a limited amount of evidence which suggests that CAM therapies may be useful for helping patients to better cope with a variety of other common cancer-related symptoms including:

- Fatigue - A study published in 2004 in the *Journal of Clinical Oncology* (Vol. 22, Issue 9; pp. 1731-1735) reported that acupuncture reduced chemotherapy-related fatigue by 31% after 6 weeks of acupuncture treatment.

- Dry Mouth (*xerostomia*) - Several studies suggest that acupuncture may be useful in the management of dry mouth that occurs in some patients undergoing radiation therapy to the head and neck.

- Hot Flashes - Some women with breast cancer who are treated with a drug called *tamoxifen* may experience hot flashes that can be very uncomfortable. A study published in 2002 in the journal *Tumori* (Volume 88, Issue 2; pp. 128-130) reported that acupuncture may relieve

menopause-related symptoms, including hot flashes, in women taking tamoxifen.

- Lymphedema - A study published in 2002 in the *European Journal of Cancer Care* (Volume 11; Issue 4, pp. 254-261) reported that a specific type of massage therapy known as *manual lymphatic drainage* (MLD) was beneficial for the treatment of breast cancer related lymphedema and also improved overall quality of life.

- Insomnia - A variety of mind-body therapies (e.g., relaxation techniques; meditation; biofeedback) may help to improve the quality of sleep of cancer patients who experience insomnia.

Dietary Modification and Supplementation

Evidence from epidemiological studies strongly supports a relationship between dietary factors and the risk for developing certain types of cancers. In general, a diet that is rich in certain food constituents (e.g., fruits, vegetable, fiber) appears to be protective against the development of cancer. In contrast, excessive consumption of other dietary substances (e.g., animal fats, alcohol) appears to increase the risk of certain types of cancers. Some vitamins that possess antioxidant properties (e.g., vitamins A, C, and E) may protect against certain types of cancers by protecting the body's cells from damage by certain compounds known as *free radicals*.

The role of dietary modification and antioxidant vitamin supplementation in slowing the progression of cancer continues to be an area of ongoing research. Currently, there are no conclusive studies which prove that any type of dietary modification or antioxidant vitamin supplementation can alter the progression of the disease in cancer patients.

Cancer patients who are considering dietary modification and/or antioxidant vitamin supplementation need to be aware of certain risks that may be associated with these regimens:

- Unintentional weight loss is a relatively common side-effect of cancer treatment, particularly among patients who are undergoing chemotherapy and/or radiation therapy. Excessive reduction of certain dietary components, such as dietary fat intake, may increase the risk of malnutrition in cancer patients. It is, therefore, important for patients to discuss the potential risks and benefits of any dietary modification with their oncologist before making a decision to modify their dietary intake.

- Some radical dietary regimens, such as *macrobiotic diets* (that are primarily vegetarian) may potentially promote the progression of disease in women with estrogen-receptor positive breast cancer or endometrial cancer due to their high content of isoflavonoid phytoestrogens. The same concern applies to diets that promote soy supplementation as a means of slowing the progression of cancer. Soy products contain high amounts of isoflavonoid phytoestrogens and should be avoided by women with estrogen-receptor positive tumors.

- High doses of certain antioxidant vitamin supplements (vitamins C and E) may increase the risk of bleeding complications in patients who have low levels of platelets in the

bloodstream (thrombocytopenia) or patients who are taking anticoagulant medications. High doses of vitamin A can cause a condition called *Hypervitaminosis A* (Vitamin A toxicity) that can cause symptoms such as nausea, vomiting, headaches, blurry vision, and impaired consciousness.

Herbal Products

Currently there is a lack of sufficient scientific evidence to recommend the use of herbal products or supplements for the treatment of cancer. The safety of herbal formulations and products is also a major factor that should be taken into consideration by consumers. The National Center for Complementary and Alternative Medicine (NCCAM) urges consumers to be aware of several important safety issues pertaining to herbal products and supplements, including:

- Do not necessarily assume that just because many of these products are labeled as "natural", they are completely safe and, therefore, cannot cause potentially serious adverse reactions. If you have any concerns about the possible side-effects of a particular herbal product or supplement, ask a pharmacist or your doctor about possible side-effects or interactions with other medications that you may be taking.

- Women who are pregnant or who are nursing should be especially cautious about using herbal products and supplements since the safety of many of these products has not established for use during pregnancy or lactation.

- Find out as much information as you can about a particular herbal product you are considering before taking it. If you have concerns or questions about a product, speak to a health care professional and get their advice. Moreover, you should always only use these products under the guidance of a health care professional.

- Some herbal products and supplements may interact with other medications that you may be taking and may cause adverse side-effects. Some herbal products may interfere with the action of certain chemotherapeutic agents that are used in the treatment of cancer. It is, therefore, important to notify your doctor about any herbal products you may be using or are considering using in order to prevent or reduce the possibility of adverse herb/drug interactions.

Quality of Life Issues in Cancer

The diagnosis of any type of cancer is a frightening, life-altering event for both the patient and their family. The potential for a diminished quality of life for newly diagnosed cancer patients becomes an immediate, pressing concern when confronted with anxiety, fear, pain, the prospect of a long course of treatments that may cause significant side effects, and the possibility that the treatments may not work. It is critically important, however, for cancer patients and their families to address and learn to cope with the physical, emotional, and social issues that, if ignored and left to "fester", can rapidly lead to a significantly reduced quality of life.

Over the years, cancer specialists and other allied health-care professionals have come to realize that addressing a cancer patient's quality of life issues is an integral component of a comprehensive, overall cancer treatment strategy. From a practical perspective, that means developing an effective treatment plan that aims not only to control and/or to eradicate the patient's cancer with medical and/or surgical therapy but, at the same time, also takes into consideration critical issues of supportive care throughout the course of treatment and offers the patient the best chances of maintaining a reasonably high level quality of life. In fact, most cancer specialists now consider supportive care as an essential component of an overall, effective cancer treatment plan.

Factors Affecting Quality of Life in Cancer Patients

Cancer patients are confronted with a variety of physical, emotional, and social issues that, if left unchecked or ignored, can rapidly contribute to a diminished quality of life. In general, some of the more common problems encountered by cancer patients either as a result of the disease itself or as a side-effect of cancer treatments include:

- Sleep disorders
- Fatigue
- Diminished exercise capacity
- Unintentional weight loss
- Psychological stress
- Cancer-related pain

Sleep Disorders

Lack of adequate sleep due to anxiety, stress, pain, or treatment side-effects can lead to severe daytime fatigue that, in turn, can interfere with the ability to function and perform routine activities of daily living. Perhaps now, more than ever before, getting an adequate amount of sleep is critical to enable the body and mind to cope with the additional physical and emotional burdens resulting from cancer and its treatment. If sleep disturbances begin to affect your functional ability and diminish your quality of life, a variety of options are available to deal with the problem. These treatment options include learning new sleep habits (improved sleep hygiene practices); complementary therapies (e.g., relaxation techniques, biofeedback, meditation); and the use of prescription sleep medications. If lack of sleep is affecting your quality of life and interfering with your activities of daily living, talk with your doctor about developing an individualized treatment plan to help improve your quality of sleep.

Fatigue

Fatigue is perhaps the most common and potentially debilitating symptom experienced by cancer patients that can have a significant negative impact on routine activities of daily living and diminish quality of life. Fatigue may be attributed to a variety of causes including side-effects of cancer treatments (e.g., chemotherapy, radiation therapy), anemia, sleep deprivation resulting from insomnia, chronic pain, inadequate nutrition, and lack of physical exercise. In many cases, a combination of factors contributes to fatigue, exhaustion, and a general lack of energy. It is important to notify your cancer specialist or primary health care provider if you begin to experience bouts of fatigue lasting a few days or longer.

A variety of strategies are available to overcome the problem of fatigue in cancer patients. Fatigue related to anemia (low numbers of red blood cells) can be treated with blood transfusions and drugs, such as *erythropoietin* (e.g., Procrit) that promote the production of red blood cells. Fatigue not related to anemia may be managed with lifestyle modifications such as proper nutrition, regular exercise, and improved sleep hygiene practices.

Exercise

In the past, cancer patients were usually advised to "relax", "take it easy" and "don't overdo it". More recently, however, doctors are beginning to realize the potential benefits of physical exercise for cancer patients undergoing treatment as well as for cancer survivors. Researchers are continuing to explore the effect of physical exercise on survival rates for various types of cancers. In general, the potential benefits of physical activity for patients suffering from chronic diseases include enhanced physical and mental function and improved quality of life. For cancer patients, the potential benefits of exercise also include decreased fatigue, improved appetite, better toleration of side effects of chemotherapy and radiation therapy and improved quality of life.

It is important to speak to your cancer specialist about the types of exercises that may be appropriate at various stages of you cancer treatment and the types of physical activities that you should avoid.

Unintentional Weight Loss

One of the most common symptoms experienced by cancer patients is *unintentional weight loss* which can lead to malnutrition, increased susceptibility to infections, reduced quality of life, and shorter survival time. The underlying causes of unintentional weight loss in cancer patients may be attributed to a variety of factors including loss of appetite associated with chemotherapy and/or radiation therapy and psychological disturbances such as depression which has been found to affect up to 25% of cancer patients.

From a metabolic perspective, unintentional weight loss may be understood by the increased energy (calories) required by cancer cells to grow and spread as well as the increased energy requirements of the body to mount an effective response to fight the cancer. A net loss in weight occurs when the body uses more calories from stored energy reserves than is available from calories ingested from nutrients in the diet. Metabolic changes in cancer can also cause a condition called *cachexia* - a generalized wasting condition involving the loss of muscle mass and fat. Cachexia may develop even in people with good nutritional intake due to the failure of the body to

absorb nutrients. Symptoms of cachexia, which affects about 50% of all cancer patients, include loss of appetite, weight loss, wasting of muscle mass, generalized fatigue, and significantly reduced capacity to perform routine activities of daily living.

The management of weight loss in cancer patients usually involves nutritional counseling to ensure an adequate intake of calories. Nutritional counseling can also help cancer patients develop new eating habits to prevent further weight loss including eating foods that are rich in calories or protein; eating smaller meals more frequently throughout the course of the day; "snacking" between meals; and drinking high-calorie liquid nutritional supplements (e.g., Boost, Ensure, Sustacal). In some cases, medications such as megestrol acetate (Megace) or dexamethasone (Decadron) may be prescribed to stimulate the appetite.

Your cancer specialist, working together with a nutritionist and a dietician, can help you develop and maintain a well-balanced diet to ensure that your body receives an adequate level of nutrition not only during the course of your cancer treatments but also during the recovery phase.

Psychological Stress

The diagnosis of cancer is a life-altering event that may evoke feelings of anxiety, fear, depression, hopelessness, and severe psychological stress in many patients. Studies have shown that about 25% of cancer patients suffer from depression. Conventional treatments for anxiety, stress, and depression may involve the administration of prescription anti-anxiety medications or antidepressants which may cause undesirable side-effects in some patients. Specific types of *psychotherapy* or "talk therapy" can also help relieve depression in cancer patients.

Studies have shown that a variety of complementary and alternative medicine (CAM) therapies are useful for controlling anxiety and other mood disturbances when used in conjunction with conventional treatments. These include:

- Mind-body interventions - relaxation techniques, guided-imagery, meditation, hypnosis
- Acupuncture
- Massage therapy
- Music therapy

In general, patients with severe mood disturbances (e.g., panic attacks; suicide ideation) require immediate psychological evaluation and treatment to stabilize their acute condition before CAM therapies may be considered. For most patients with mild to moderate anxiety and mood disturbances, CAM therapies are a useful adjunct to conventional treatments for managing psychological distress. Techniques such as mind-body interventions, acupuncture, and music therapy are generally safe when performed by qualified, experienced practitioners and can help cancer patients better cope with feelings of anxiety, fear, hopelessness, and depression. Although some herbs and dietary supplements (e.g., Kava Kava; St. John's Wort; Passionflower) have been reported to relieve anxiety and mood disturbances, some experts have discouraged the use of these products in cancer patients because they may interfere with drugs used to treat cancer (chemotherapeutic agents) and/or other medications that patients may be taking. Patients should discuss the risks and benefits of using any herbal medications/dietary supplements with their oncologist before taking any of these products, particularly if they are undergoing chemotherapy, radiation therapy, or surgery.

Cancer-Related Pain

Pain is a relatively common symptom that is experienced by many cancer patients. In recent years, increased awareness about this problem has led to important advances in the management of patients with cancer-related pain. In fact, today most major cancer centers in the United States have established pain management clinics, usually located within the Anesthesiology department of a hospital, that specialize in helping patients to better control their cancer-related pain.

Most often, the source of cancer-related pain is the tumor itself. This can occur when a tumor spreads and invades other tissues or organs of the body; when a tumor compresses a nearby nerve or the spinal cord; or when a tumor causes intestinal obstruction. Cancer-related pain may also be caused by some procedures that are used for the diagnosis and treatment of cancer. Examples include tissue biopsy; placement of a central line catheter; bone marrow aspiration; and spinal tap.

Irrespective of the source of your cancer pain, it is important to notify your oncologist or primary care doctor about any pain or discomfort that you may be experiencing so that appropriate measures can be taken to eliminate or better control the pain. In developing an individualized pain control strategy, your doctor will want to learn as much as possible about the pain you are experiencing, including:

- When did the pain start?
- How long does the pain last (acute or chronic)?
- Is the pain minor, moderate, or severe?
- Is the pain localized to a particular area of the body?
- Are there any specific activities or events that either "trigger" the pain or help to alleviate the pain?
- To what extent does the pain interfere with your quality of life and activities of daily living?
- Are you currently taking any pain medications?

Drug Therapy for Cancer-Related Pain

A wide range of pain medications is available for helping patients better cope with cancer-related pain. Your doctor will determine the specific type of medication that is most suitable for you based on the information you provide including the severity of the pain (e.g., mild, moderate, or severe) and the duration of the pain. You can help your doctor in selecting the most appropriate pain medication for your specific type of cancer pain by providing him/her with as much information as possible about the nature and characteristics of the pain. Be sure to also notify your doctor if:

- You are allergic to any medications
- You have previously experienced any serious side-effects from pain medications (e.g., gastrointestinal bleeding)
- You have a current or past history of stomach ulcers
- You are taking any other pain medications including herbal products or medications.

In general, the following pain medication treatment options are available in the management of cancer-related pain based upon the severity of the pain:

- Non-Steroidal Anti-Inflammatory Drugs - Mild cancer-related pain can usually be managed

with a variety of pain medications that belong to the general family of drugs known as *non-steroidal anti-inflammatory drugs* (NSAIDs). Examples of NSAIDs that are available "over-the-counter" include:

- aspirin (e.g., Bayer)
- acetaminophen (e.g., Tylenol)
- ibuprofen (e.g., Motrin)
- naproxen (e.g., Aleve)

Some NSAIDs used for the treatment of pain, including cancer-related pain, are available by prescription only. Examples include diclofenac (e.g., Voltaren); indomethacin (Indocin); ketoprofen (e.g., Orudis); and Cox-2 inhibitors (e.g., Celebrex), among others.

- Narcotic (Opioid) Analgesics - If you are experiencing mild to moderate cancer-related pain, your doctor may prescribe a medication that belongs to a family of drugs known as *narcotic analgesics*. Examples include:

  - codeine
  - morphine
  - buprenorphine (e.g., Subutex; Suboxone)
  - fentanyl (e.g., Duragesic)
  - oxycodone (e.g., OxyNorm; OxyContin)
  - hydrocodone (e.g., Vicodin; Lortab)
  - hydromorphone (e.g., Dilaudid)

In some cases, combination pain medication tablets containing an NSAID plus a narcotic analgesic may be prescribed for the management of mild to moderate cancer-related pain. Examples of combination pain medication tablets include Percodan (aspirin plus oxycodone); Percocet (acetaminophen plus oxycodone); Co-codamol (acetaminophen plus codeine); and Co-codaprin (aspirin plus codeine).

As a general "rule of thumb", cancer patients with mild to moderate pain are usually started on "weaker" opioid-based medications (e.g., codeine) and, if necessary, are switched to stronger opioid medications (e.g., fentanyl, oxycodone, morphine).

Common side-effects of narcotic analgesics include constipation, lethargy, drowsiness, nausea/vomiting, and sleepiness. In addition, a major concern with the use of narcotic analgesics is the possibility of addiction to the medications. Be sure you notify your doctor if you have a current or past history of drug and/or alcohol abuse before taking narcotic analgesics. Also speak with your doctor about strategies that can be used to manage the side-effects of narcotic analgesics. For example, constipation may be managed by taking a stool softener (e.g., Colace; Senokot). If you experience drowsiness or sleepiness when you take your pain medication, you should avoid any activities that may pose a danger to yourself or others (e.g., driving a car; mowing the lawn).

- Adjuvant Pain Medications - Some drugs that are primary used to treat conditions other than

pain also possess analgesic (pain-relieving) properties. These drugs are known as *adjuvant pain medications* and are sometimes prescribed, alone or in combination with other medications, for the management of cancer-related pain. Examples include:

- anticonvulsants - This class of drugs is used primarily to treat seizures. Examples of anticonvulsants that may also be used to treat cancer pain include: gabapentin (e.g.,Neurontin); carbamazepine (e.g., Tegretol); phenytoin (e.g., Dilantin); and topiramate (e.g., Topamax)

- antidepressants - This class of drugs is used primarily to treat depression. Examples of antidepressants that may be also be used to treat cancer pain include: amitriptylene (e.g., Elavil); desipramine (e.g., Norpramin); doxepin (e.g., Sinequon); and impipramine (e.g., Tofranil).

- bisphosphonates - This class of drugs is used primarily for the treatment of osteoporosis. Studies have also demonstrated that bisphosphonates may relieve bone pain in cancer patients. Examples include: alendronate (e.g., Fosamax); pamidronate (Aredia); and etidronate (e.g., Didronel).

- corticosteroids - This class of drugs is used primarily to treat inflammatory conditions such as rheumatoid arthritis, osteoarthritis, and ankylosing spondylitis. By reducing inflammation, corticosteroids also reduce pain. A common type of corticosteroid drug used for the management of cancer pain is dexamethasone (e.g., Dexmethsone).

- Breakthrough Cancer Pain - Despite the regular use of pain medications on a fixed schedule, many cancer patients (estimates range from 50% to 65%) experience a type of pain known as *breakthrough cancer pain*. This type of pain is characterized by a sudden onset, may last from minutes to hours, and is usually severe in nature. Breakthrough cancer pain occurs most often in patients who are experiencing persistent or chronic cancer pain who notice a sudden, periodic "flare-up" of severe pain even though they are taking pain medication on a regular schedule.

Breakthrough cancer pain is most often treated with opioid medications that act quickly, such as immediate release morphine tablets or capsules, but are rapidly eliminated from the body so that they cause less side-effects. The U.S. Food and Drug Administration (FDA) has also approved a drug called ACTIQ (Oral Transmucosal Fentanyl Citrate) in the form of a lozenge on a stick that dissolves slowly in the mouth for the treatment of breakthrough cancer pain. Be sure to notify your doctor if you think you may be experiencing breakthrough pain that is not controlled with your regular fixed-schedule pain medications so that he/she may determine the best course of treatment to alleviate your pain.

For more information about cancer-related pain and the treatment options, please click on the following link: http://www.cancer-pain.org

The Role of Complementary and Alternative Medicine Therapies in Cancer-Related Pain

As a general rule, complementary and alternative medicine (CAM) therapies are usually not considered as a viable treatment option for the management of acute cancer-related pain. Acute cancer-related pain usually responds best to conventional drug therapy (e.g., NSAIDs; narcotic analgesics; adjuvant pain medications). Surgery may also be necessary for the treatment of some types of acute cancer pain such as when a tumor compresses a nearby nerve or the spinal cord or if the tumor is causing abdominal or intestinal obstruction. Once the acute pain has been brought under control by conventional treatment modalities, CAM therapies may be considered in the management of *chronic* (persistent) cancer-related pain. A potential benefit of using CAM therapies in conjunction with conventional treatments for the management of chronic cancer-related pain is that they may reduce the dosage of conventional pain medications that may be required to achieve chronic pain control and, therefore, also potentially reduce the side-effects that may be associated with conventional pain medications.

A variety of CAM therapies, when used in conjunction with conventional treatments, may be beneficial for the management of chronic cancer-related pain, including:

- Meditation
- Guided imagery
- Hypnosis
- Relaxation techniques
- Massage therapy
- Reflexology
- Acupuncture
- Yoga
- Aromatherapy

Where Can You Find Supportive Care?

Fortunately, supportive care is available for cancer patients and their families from a multitude of resources. These include:

- Cancer Centers - the hospital or cancer center where you have chosen to receive your treatment is an excellent starting point in your search for supportive cancer care. Many major hospitals and comprehensive cancer centers provide access to a variety of resources for cancer patients including educational, psychological, and social services support.

- Your Cancer Physician - the primary cancer specialist who is in charge of your care and is responsible for your overall treatment is also an excellent resource of information and support. These cancer specialists are in the business of caring for cancer patients and usually have a wealth of knowledge about the physical, psychological, and social issues confronting patients who have been diagnosed with cancer. Depending upon your specific type of cancer, a variety of cancer specialists may be involved in your treatment including an:

    - oncologist
    - hematologist
    - radiation oncologist

    - surgical oncologist

- Oncology Nurses - if your treatment plan includes chemotherapy, you will be assigned a nurse oncologist who will administer your drugs and monitor side-effects or other problems that may occur during your chemotherapy sessions. Nurse oncologists are highly trained professionals who are a wonderful source of information and can provide educational materials, emotional support, and practical tips for dealing with adverse side-effects of chemotherapy such as nausea, fatigue, and pain.

- Your Primary Care Physician - it is likely that a visit to your primary care physician led to the discovery and diagnosis of your cancer and that your primary care physician referred you to a cancer specialist for treatment. Your primary care physician will usually work closely with your cancer specialist in following your progress both during as well as after treatment has been completed. It is important to be open and frank with your primary care physician and talk to him/her about any physical or emotional problems that you may experience so that they can help you get over these difficult periods.

- Nurse Practitioners - Nurse practitioners are registered nurses (RNs) who have completed additional courses and training. They can work with or without the supervision of a physician. Their scope of work includes both diagnosis and treatment of diseases and, in many states, they can also write prescriptions.

- Physician's Assistants - A physician's assistant is a licensed health care professional who provides care under the supervision of a physician. Physician's assistants provide a broad range of diagnostic and therapeutic services including ordering and interpreting laboratory tests, diagnosing and treating diseases and conditions, conducting physical examinations, and assisting in surgery.

- Nutritionists/Dieticians - consultation with a nutritional expert can help ensure that you maintain an adequate level of nutrition throughout your cancer treatment and that your body has sufficient energy to withstand the rigorous cancer treatments which may carry significant side-effects. Well-nourished cancer patients also have more energy and are less prone to experience severe fatigue and exhaustion.

- Social Workers - a social worker who is experienced in working with cancer patients (oncology social workers) can provide valuable assistance in dealing with a variety of social and emotional issues including:

    - teaching patients and families to navigate the complexities of the health-care system
    - helping with financial and health insurance issues
    - assisting family members in adjusting to new roles and responsibilities
    - arranging home health care for patients requiring home-based treatments
    - providing access to local, state, and government agencies that provide social and health services
    - helping cancer patients deal with employees and return to work issues

- Mental Health Professionals - a psychiatrist or psychologist with expertise in diagnosing and

treating psychological and emotional disturbances in cancer patients (e.g., anxiety, fear, depression, self-image issues) is an integral member of the comprehensive cancer team who can help patients better cope and adjust to living with cancer.

- Clergy - a trusted member of the clergy can provide spiritual guidance, reassurance, and hope to cancer patients and their families.

- Sex Therapists - a sex therapist can help cancer patients who experience a reduced libido or other sexual problems that may develop as a consequence of the cancer itself or treatment related side-effects.

- Family and Friends - family, friends, and long-term acquaintances who know you best are one of your most important support networks and can provide emotional support, guidance, and encouragement both during and long after you have completed your course of cancer therapy. Now, more than ever, you need to open-up to your family and friends and share your feelings, fears, and emotions with them. They will appreciate your willingness to trust and confide in them and you will benefit from their reassurance, encouragement, positive attitude, and continuous love.

- Organizations and Support Groups - a broad range of organizations and support groups that specialize in helping cancer patients and their families represent a valuable source of support, networking, access to services, and for obtaining important educational cancer materials. Some of these major organizations may be located in your city and some cancer support groups may even have branches in your neighborhood. Joining a cancer support group may be one of the most important steps you take to help yourself on the road to recovery. Networking and "connecting" with other cancer patients and cancer survivors who understand and share your fears and concerns can be an important source of consolation, comfort, and peace of mind knowing that you are not alone in this battle. Other cancer patients have been down this road before and learning about their personal experiences and coping strategies can help you work your way through this difficult period in your life.

Questions to Ask Your Health Care Provider about Renal Cell Carcinoma

- What stage is the disease and is there any evidence of metastases?
- What treatment options are available?
- What side effects should be expected from the treatment?
- What follow-up monitoring is necessary?
- What is the prognosis for my stage of RCC?
- Am I a good candidate for the newer "targeted therapies" that are available for the treatment of metastatic RCC?
- Are there any effective complementary medicine therapies that may help me to cope better with the side-effects of conventional treatments for RCC?
- Are there any clinical trials for which I might qualify?
- What resources are available for education and support?

3 - Guide to the Medical Literature

Introduction

This section of your *MediFocus Guidebook* is a comprehensive bibliography of important recent medical literature published about the condition from authoritative, trustworthy medical journals. This is the same information that is used by physicians and researchers to keep up with the latest advances in clinical medicine and biomedical research. A broad spectrum of articles is included in each *MediFocus Guidebook* to provide information about standard treatments, treatment options, new developments, and advances in research.

To facilitate your review and analysis of this information, the articles in this *MediFocus Guidebook* are grouped in the following categories:

- Review Articles - 77 Articles
- General Interest Articles - 23 Articles
- Drug Therapy Articles - 20 Articles
- Surgical Therapy Articles - 34 Articles
- Clinical Trials Articles - 53 Articles
- Immunotherapy Articles - 10 Articles
- Ablation Therapy Articles - 3 Articles

The following information is provided for each of the articles referenced in this section of your *MediFocus Guidebook:*

- Title of the article
- Name of the authors
- Institution where the study was done
- Journal reference (Volume, page numbers, year of publication)
- Link to Abstract (brief summary of the actual article)

Linking to Abstracts: Most of the medical journal articles referenced in this section of your *MediFocus Guidebook* include an abstract (brief summary of the actual article) that can be accessed online via the National Library of Medicine's PubMed® database. You can easily access the individual abstracts online via PubMed® from the "electronic" format of your *MediFocus Guidebook* by clicking on the URI that is provided for each cited article. If you purchased a printed copy of the *MediFocus Guidebook*, you can still access the abstracts online by entering the individual URI for a particular abstract into your computer's web browser.

Recent Literature: What Your Doctor Reads

Database: PubMed <January 2008 to October 2010

Review Articles

1.

Expert opinion on the use of first-line sorafenib in selected metastatic renal cell carcinoma patients.

Authors: Bellmunt J; Fishman M; Eisen T; Quinn D
Institution: University Hospital del Mar-IMIM, RTICC, Paseo Maritimi 25-29, Barcelona, Spain. jbellmunt@imas.imim.es
Journal: Expert Rev Anticancer Ther. 2010 Jun;10(6):825-35.
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Authors: Bratslavsky G; Linehan WM
Institution: Urologic Oncology Branch, National Cancer Institute, National Institutes of Health, Bethesda, MD 20892-1414, USA. bratslag@mail.nih.gov <bratslag@mail.nih.gov>
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Institution: Clinic for Hematology, Hemostaseology, Oncology and Stem Cell Transplantation, Hannover Medical School, Carl-Neuberg-Strasse 1, 30625, Hannover, Germany.
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Institution: Department of Urology, University of Munster, Albert-Schweitzer Strasse 33, 48149, Munster, Germany. herrmae@ukmuenster.de
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Institution: Division of Urology, Department of Surgery, The University of Texas Medical School at Houston, Houston, Texas, USA.
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Authors: McDermott DF; George DJ
Institution: Beth Israel Deaconess Medical Center, Department of Medicine, Division of Hematology/Oncology, 375 Longwood Avenue, MS 428, Boston, MA 02215, USA. dmcdermo@bidmc.harvard.edu
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Authors: Rathmell WK; Godley PA
Institution: Department of Medicine, Division of Hematology and Oncology, Lineberger Comprehensive Cancer Center, University of North Carolina, Chapel Hill, North Carolina, USA. Rathmell@med.unc.edu
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Author: Russo P
Institution: Department of Surgery, Urology Service, Weill Cornell College of Medicine, Memorial Sloan Kettering Cancer Center, 1275 York Avenue, New York, NY, 10021, USA. RussoP@MSKCC.org
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Institution: Department of Pathology, University of Arkansas for Medical Sciences, Little Rock, Arkansas, USA. drshreegopal@gmail.com
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Author: Van Poppel H
Institution: Department of Urology, University Hospital, K.U. Leuven, Leuven, Belgium. hendrik.vanpoppel@uz.kuleuven.ac.be
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Authors: Volpe A; Patard JJ
Institution: Division of Urology, Maggiore della Carita Hospital, University of Eastern Piedmont, Corso Mazzini, 18, 28100, Novara, Italy. alessandro.volpe@med.unipmn.it
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Author: Atkins MB
Institution: Division of Hematology/Oncology, Beth Israel Deaconess Medical Center, MASCO Bldg, Rm 412, 375 Longwood Ave, Boston, MA 02215, USA. matkins@bidmc.harvard.edu
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Author: Bukowski RM
Institution: Cleveland Clinic and Cleveland Clinic Lerner College of Medicine of Case Western Reserve University, Cleveland, Ohio 44195, USA. bukow464@sbcglobal.net
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Author: Cella D
Institution: Department of Medical Social Sciences and The Robert H. Lurie Comprehensive Cancer Center of Northwestern University, Evanston, IL, USA. d-cella@northwestern.edu
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Institution: Medical Oncology Department, Institut Gustave Roussy, Villejuif, France. escudier@igr.fr
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Institution: Department of Uro-Gynecology, National Cancer Institute of Napoli, 'Fondazione G. Pascale' via m. Semmola, Napoli, Italy. gafacchi@libero.it
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Institution: Glickman Urological and Kidney Foundation, Cleveland Clinic - Q10, 9500 Euclid Avenue, Cleveland, OH 44195, USA. ghoneii@ccf.org
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Author: Hudes GR
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Authors: Kapoor A; Figlin RA
Institution: Juravinski Cancer Center, McMaster University, Hamilton, Ontario, Canada. kapoor4@mcmaster.ca
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Institution: Department of Urology, The University of Texas MD Anderson Cancer Center, Houston, TX 77030, USA.
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Institution: Biologic Therapy Program, Beth Israel Deaconess Medical Center, 375 Longwood Avenue, MS-428, Boston, MA 02215, USA. dmcdermo@bidmc.harvard.edu
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Author: Melichar B
Institution: Department of Oncology, Palacky University Medical School and Teaching Hospital, Olomouc, Czech Republic. bohuslav.melichar@fnol.cz
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Institution: Department of Urology and Urologic Oncology Hannover Medical School (MHH) Carl-Neuberg-Strasse 1, 30625 Hannover, Germany. merseburger.axel@mh-hannover.de
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Authors: Park BK; Kim CK
Institution: The Department of Radiology and Center for Imaging Science, Samsung Medical Center, Sungkyunkwan University School of Medicine, 50 Ilwon-dong, Kangnam-ku, Seoul 135-710, Korea. rapark@skku.edu
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Institution: Medical Oncology, IRCCS San Matteo University Hospital Foundation, Piazzale C. Golgi 19, I-27100 Pavia, Italy.
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Authors: Prenen H; Gil T; Awada A
Institution: Department of General Medical Oncology, University Hospital Gasthuisberg, Catholic University Leuven, Herestraat 49, 3000 Leuven, Belgium. hans.prenen@uz.kuleuven.be
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Institution: Servicio Urologia Hospital Universitario Marques de Valdecilla, Santander, Cantabria, Spain.
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Authors: Reeves DJ; Liu CY
Institution: Department of Pharmacy Services, Karmanos Cancer Center, Detroit, MI 48201, USA. reevesd@karmanos.org
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Author: Rini BI
Institution: Department of Solid Tumor Oncology, Cleveland Clinic Taussig Cancer Institute, Glickman Urological and Kidney Institute, 9500 Euclid Avenue/Desk R35, Cleveland, OH 44195, USA. rinib2@ccf.org
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Author: Rini BI
Institution: Department of Solid Tumor Oncology, Cleveland Clinic Taussig Cancer Institute, Glickman Urological and Kidney Institute, 9500 Euclid Ave, Desk R35, Cleveland, OH 44195, USA. rinib2@ccf.org
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Authors: Rini BI; Atkins MB
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Authors: Schmidinger M; Zielinski CC
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Authors: Sosman J; Puzanov I
Institution: Division of Hematology/Oncology, Vanderbilt-Ingram Cancer Center, Vanderbilt University Medical Center, 777 Preston Building, Nashville, TN 37232-6307, USA. jeff.sosman@vanderbilt.edu
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Institution: Peninsula Technology Assessment Group, Peninsula Medical School, Universities of Plymouth and Exeter, Noy Scott House, Barrack Road, Exeter EX2 5DW, UK. jo.thompson-coon@pms.ac.uk
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Institution: Department of Medicine, Roswell Park Cancer Institute, Buffalo, New York 14263, USA.
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Institution: The Peninsula Medical School, Royal Devon & Exeter NHS Foundation Trust, Radiology Department, Barrack Road, Exeter, EX2 5DW, UK.
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Authors: Kunkle DA; Egleston BL; Uzzo RG
Institution: Department of Urologic Oncology, Fox Chase Cancer Center, Temple University School of Medicine, Philadelphia, Pennsylvania 19111, USA.
Journal: J Urol. 2008 Apr;179(4):1227-33; discussion 1233-4. Epub 2008 Feb 20.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18280512

64.

Targeting angiogenesis in renal cell carcinoma.

Authors: Lainakis G; Bamias A
Institution: Dept. of Clinical Therapeutics, Medical School, University of Athens, 15235 Athens, Greece.
Journal: Curr Cancer Drug Targets. 2008 Aug;8(5):349-58.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18690841

65.

Temsirolimus, an mTOR inhibitor for treatment of patients with advanced renal cell carcinoma.

Authors: Malizzia LJ; Hsu A
Institution: Fox Chase Cancer Center, Philadelphia, PA, USA. lois.malizzia@fccc.edu
Journal: Clin J Oncol Nurs. 2008 Aug;12(4):639-46.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18676330

66.

Cytoreductive nephrectomy in metastatic renal cell carcinoma.

Authors: Margulis V; Matin SF; Wood CG
Institution: Department of Urology, The University of Texas M. D. Anderson Cancer Center, Houston, Texas 77030, USA.
Journal: Curr Opin Urol. 2008 Sep;18(5):474-80.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18670270

67.

Nephron-sparing probe ablative therapy: long-term outcomes.

Authors: Matin SF; Ahrar K
Institution: Department of Urology, The University of Texas, M.D. Anderson Cancer Center, Houston, Texas, USA. surmatin@mdanderson.org
Journal: Curr Opin Urol. 2008 Mar;18(2):150-6.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18303535

68.

Renal cell carcinoma: diagnosis, staging, and surveillance.

Authors: Ng CS; Wood CG; Silverman PM; Tannir NM; Tamboli P; Sandler CM
Institution: Department of Radiology, Box 368, The University of Texas M D Anderson Cancer Center, 1515 Holcombe Blvd., Houston, TX 77030-4009, USA. cng@mdanderson.org
Journal: AJR Am J Roentgenol. 2008 Oct;191(4):1220-32.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18806169

69.

Renal cell carcinoma.

Authors: Rini BI; Rathmell WK; Godley P
Institution: Cleveland Clinic Taussig Cancer Center, Cleveland, Ohio, USA.
Journal: Curr Opin Oncol. 2008 May;20(3):300-6.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18391630

70.

Advances in diagnosis and follow-up in kidney cancer.

Authors: Rioja J; de la Rosette JJ; Wijkstra H; Laguna MP
Institution: Department of Urology, AMC University Hospital, Amsterdam, The Netherlands.
Journal: Curr Opin Urol. 2008 Sep;18(5):447-54.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18670266

71.

Metastatic non-clear cell renal cell carcinoma: current therapeutic options.

Authors: Schrader AJ; Olbert PJ; Hegele A; Varga Z; Hofmann R
Institution: Department of Urology, Philipps-University Medical School, Marburg, Germany. ajschrader@gmx.de
Journal: BJU Int. 2008 Jun;101(11):1343-5. Epub 2008 Jan 30.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18241246

72.

Metastatic renal cell carcinoma: recent advances and current therapeutic options.

Authors: Schrader AJ; Hofmann R
Institution: Department of Urology, Philipps University Medical School, Baldingerstrasse, 35043 Marburg, Germany. ajschrader@gmx.de
Journal: Anticancer Drugs. 2008 Mar;19(3):235-45.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18510169

73.

Carbonic anhydrase IX and renal cell carcinoma: prognosis, response to systemic therapy, and future vaccine strategies.

Authors: Shuch B; Li Z; Belldegrun AS
Institution: David Geffen School of Medicine, University of California-Los Angeles (UCLA), Los Angeles, CA 90095-1738, USA.
Journal: BJU Int. 2008 Jun;101 Suppl 4:25-30.
Abstract Link: **ABSTRACT NOT AVAILABLE**

74.

The staging of renal cell carcinoma.

Authors: Shuch B; La Rochelle JC; Pantuck AJ; Belldegrun AS
Institution: Department of Urology, David Geffen School of Medicine at UCLA, Los Angeles, California 90095-1738, USA.
Journal: Curr Opin Urol. 2008 Sep;18(5):455-61.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18670267

75.

Diagnostic and prognostic molecular markers in renal cell carcinoma.

Authors: Tunuguntla HS; Jorda M
Institution: Department of Urology, Miller School of Medicine, University of Miami, Miami, Florida 33136, USA. Htunuguntla2@med.miami.edu
Journal: J Urol. 2008 Jun;179(6):2096-102. Epub 2008 Apr 18.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18423738

76.

Targeted therapy in renal cell carcinoma.

Authors: Vakkalanka BK; Rini BI
Institution: Department of Solid Tumor Oncology and Urology, Cleveland Clinic Taussig Cancer Institute, Cleveland, Ohio 44195, USA.
Journal: Curr Opin Urol. 2008 Sep;18(5):481-7.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18670271

77.

Novel drugs for renal cell carcinoma.

Authors: Vakkalanka BK; Bukowski RM
Institution: Taussig Cancer Center, Cleveland Clinic Foundation, Department of Solid Tumor Oncology, Cleveland, Ohio 44195, USA. vakkalb@ccf.org
Journal: Expert Opin Investig Drugs. 2008 Oct;17(10):1501-16.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18808310

General Interest Articles

78.

Radiotherapy for brain metastases from renal cell cancer: should whole-brain radiotherapy be added to stereotactic radiosurgery?: analysis of 88 patients.

Authors: Fokas E; Henzel M; Hamm K; Surber G; Kleinert G; Engenhart-Cabillic R
Institution: Department of Radiotherapy and Radiation Oncology, Philipps University Marburg, Marburg, Germany. emmanouil.fokas@rob.ox.ac.uk
Journal: Strahlenther Onkol. 2010 Apr;186(4):210-7. Epub 2010 Feb 22.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=20165820

79.

Evaluating overall survival and competing risks of death in patients with localized renal cell carcinoma using a comprehensive nomogram.

Authors: Kutikov A; Egleston BL; Wong YN; Uzzo RG
Institution: Department of Urological Oncology, Fox Chase Cancer Center, Temple University School of Medicine, Philadelphia, PA 19111, USA.
Journal: J Clin Oncol. 2010 Jan 10;28(2):311-7. Epub 2009 Nov 23.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=19933918

80.

Vaccination strategies in patients with renal cell carcinoma.

Authors: Asemissen AM; Brossart P
Institution: Medizinische Klinik II, Hematology and Oncolgy, St. Johannes Klinikum, An der Abtei 7-11, 47166 Duisburg, Germany. asemissen@web.de
Journal: Cancer Immunol Immunother. 2009 Jul;58(7):1169-74. Epub 2009 Apr 10.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=19360405

81.

Targeted therapy of renal cell carcinoma: synergistic activity of cG250-TNF and IFNg.

Authors: Bauer S; Oosterwijk-Wakka JC; Adrian N; Oosterwijk E; Fischer E; Wuest T; Stenner F; Perani A; Cohen L; Knuth A; Divgi C; Jager D; Scott AM; Ritter G; Old LJ; Renner C
Institution: Oncology Department, Universitats Spital Zurich, Zurich, Switzerland. stefan1.bauer@med.uni-heidelberg.de
Journal: Int J Cancer. 2009 Jul 1;125(1):115-23.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=19384924

82.

Future developments in renal cell carcinoma.

Author: Bellmunt J
Institution: Solid Tumor Oncology (Genitourinary and Gastrointestinal) Section, Medical Oncology Service, Hospital Del Mar, Barcelona, Spain. jbellmunt@imas.imim.es
Journal: Ann Oncol. 2009 May;20 Suppl 1:i13-17.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=19430003

83.

Family history and risk of renal cell carcinoma: results from a case-control study and systematic meta-analysis.

Authors: Clague J; Lin J; Cassidy A; Matin S; Tannir NM; Tamboli P; Wood CG; Wu X
Institution: Department of Epidemiology, Box 1340, The University of Texas M. D. Anderson Cancer Center, 1155 Pressler Street, Houston, TX 77030, USA.
Journal: Cancer Epidemiol Biomarkers Prev. 2009 Mar;18(3):801-7. Epub 2009 Feb 24.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=19240244

84.

Prospective assessment of systemic therapy followed by surgical removal of metastases in selected patients with renal cell carcinoma.

Authors: Daliani DD; Tannir NM; Papandreou CN; Wang X; Swisher S; Wood CG; Swanson DA; Logothetis CJ; Jonasch E
Institution: Medical Oncology Department, University Hospital of Larissa, Mzourlo, Larrissa, Greece.
Journal: BJU Int. 2009 Aug;104(4):456-60. Epub 2009 Mar 31.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=19338544

85.

Age at diagnosis is an independent predictor of small renal cell carcinoma recurrence-free survival.

Authors: Jeong IG; Yoo CH; Song K; Park J; Cho YM; Song C; Hong JH; Ahn H; Kim CS
Institution: Department of Urology, Asan Medical Center, Seoul, Republic of Korea.
Journal: J Urol. 2009 Aug;182(2):445-50. Epub 2009 Jun 13.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=19524959

86.

Young age is independent prognostic factor for cancer-specific survival of low-stage clear cell renal cell carcinoma.

Authors: Jung EJ; Lee HJ; Kwak C; Ku JH; Moon KC
Institution: Department of Pathology, Medical Research Center, Seoul National University College of Medicine, Seoul, Korea.
Journal: Urology. 2009 Jan;73(1):137-41. Epub 2008 Oct 31.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18950844

87.

Kidney cancer in the elderly.

Author: Kirkali Z
Institution: Department of Urology, Dokuz Eylul University School of Medicine, Izmir, Turkey. ziya.kirkali@deu.edu.tr
Journal: Urol Oncol. 2009 Nov-Dec;27(6):673-6.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=19879478

88.

How to optimise treatment compliance in metastatic renal cell carcinoma with targeted agents.

Author: Ravaud A
Institution: Department of Medical Oncology and Radiotherapy, Hopital Saint-Andre, University Hospital, Bordeaux and Universite Bordeaux, 2 Victor Segalen, Bordeaux, France. alain.ravaud@chu-bordeaux.fr
Journal: Ann Oncol. 2009 May;20 Suppl 1:i7-12.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=19430007

89.

Four cases of advanced renal cell carcinoma with pancreatic metastasis successfully treated with radiation therapy.

Authors: Saito J; Yamanaka K; Sato M; Mori N; Sekii K; Yoshioka T; Itatani H; Nakatsuka S
Institution: Department of Urology, Sumitomo Hospital, 5-3-20 Nakanoshima, Kita-ku, Osaka, 530-0005, Japan. saitou-jyun@sumitomo-hp.or.jp
Journal: Int J Clin Oncol. 2009 Jun;14(3):258-61. Epub 2009 Jul 11.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=19593620

90.

Overweight is associated with improved cancer-specific survival in patients with organ-confined renal cell carcinoma.

Authors: Schrader AJ; Rustemeier J; Rustemeier JC; Timmesfeld N; Varga Z; Hegele A; Olbert PJ; Hofmann R
Institution: Department of Urology, Philipps-University Medical School, Baldingerstrasse, 35043 Marburg, Germany. ajschrader@gmx.de
Journal: J Cancer Res Clin Oncol. 2009 Dec;135(12):1693-9. Epub 2009 Jun 20.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=19543914

91.

Age, tumor size and relative survival of patients with localized renal cell carcinoma: a surveillance, epidemiology and end results analysis.

Authors: Scoll BJ; Wong YN; Egleston BL; Kunkle DA; Saad IR; Uzzo RG
Institution: Department of Urologic Oncology, Fox Chase Cancer Center, Temple University School of Medicine, Philadelphia, Pennsylvania 19111, USA.
Journal: J Urol. 2009 Feb;181(2):506-11. Epub 2008 Dec 13.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=19084868

92.

Prognostic impact of histological subtype on surgically treated localized renal cell carcinoma.

Authors: Teloken PE; Thompson RH; Tickoo SK; Cronin A; Savage C; Reuter VE; Russo P
Institution: Urology Service, Department of Surgery, Memorial Sloan-Kettering Cancer Center, New York, New York 10065, USA.
Journal: J Urol. 2009 Nov;182(5):2132-6. Epub 2009 Sep 16.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=19758615

93.

Pre-operative urinary cathepsin D is associated with survival in patients with renal cell carcinoma.

Authors: Vasudev NS; Sim S; Cairns DA; Ferguson RE; Craven RA; Stanley A; Cartledge J; Thompson D; Selby PJ; Banks RE
Institution: Cancer Research UK Clinical Centre, Leeds Institute of Molecular Medicine, St James's University Hospital, Leeds, UK.
Journal: Br J Cancer. 2009 Oct 6;101(7):1175-82.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=19789534

94.

Neoadjuvant (presurgical) therapy for renal cell carcinoma: a new treatment paradigm for locally advanced and metastatic disease.

Authors: Wood CG; Margulis V
Institution: Department of Urology, Unit 1373, The University of Texas M. D. Anderson Cancer Center, 1515 Holcombe Boulevard, Houston, TX 77030, USA. cgwood@mdanderson.org
Journal: Cancer. 2009 May 15;115(10 Suppl):2355-60.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=19402066

95.

Gamma knife radiosurgery for brainstem metastases: the UCSF experience.

Authors: Kased N; Huang K; Nakamura JL; Sahgal A; Larson DA; McDermott MW; Sneed PK
Institution: Department of Radiation Oncology, University of California-San Francisco, 505 Parnassus Avenue, San Francisco, CA 94143-0226, USA.
Journal: J Neurooncol. 2008 Jan;86(2):195-205. Epub 2007 Jul 13.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=17628747

96.

Statins might reduce risk of renal cell carcinoma in humans: case-control study of 500,000 veterans.

Authors: Khurana V; Caldito G; Ankem M
Institution: Gastroenterology Service, Overton Brooks Veterans Affairs Medical Center, Shreveport, Louisiana 71101, USA.
Journal: Urology. 2008 Jan;71(1):118-22.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18242378

97.

Tumor size does not predict risk of metastatic disease or prognosis of small renal cell carcinomas.

Authors: Klatte T; Patard JJ; de Martino M; Bensalah K; Verhoest G; de la Taille A; Abbou CC; Allhoff EP; Carrieri G; Riggs SB; Kabbinavar FF; Belldegrun AS; Pantuck AJ
Institution: Department of Urology, David Geffen School of Medicine, University of California-Los Angeles, Los Angeles, California 90025-1738, USA.
Journal: J Urol. 2008 May;179(5):1719-26. Epub 2008 Mar 17.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18343437

98.

Brain metastasis from renal cell carcinoma: presentation, recurrence, and survival.

Authors: Shuch B; La Rochelle JC; Klatte T; Riggs SB; Liu W; Kabbinavar FF; Pantuck AJ; Belldegrun AS
Institution: Department of Urology, David Geffen School of Medicine, University of California at Los Angeles, Los Angeles, California 90095-1738, USA.
Journal: Cancer. 2008 Oct 1;113(7):1641-8.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18671240

99.

Racial/ethnic and gender disparities in renal cell carcinoma incidence and survival.

Authors: Stafford HS; Saltzstein SL; Shimasaki S; Sanders C; Downs TM; Robins Sadler G
Institution: Rebecca and John Moores UCSD Cancer Center, University of California, California 92093-0850, USA. heshi@ucsd.edu
Journal: J Urol. 2008 May;179(5):1704-8. Epub 2008 Mar 17.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18343443

100.

Renal cell carcinoma in young and old patients--is there a difference?

Authors: Thompson RH; Ordonez MA; Iasonos A; Secin FP; Guillonneau B; Russo P; Touijer K
Institution: Department of Surgery (Urology Service), Memorial Sloan-Kettering Cancer Center, New York, New York 10065, USA.
Journal: J Urol. 2008 Oct;180(4):1262-6; discussion 1266. Epub 2008 Aug 15.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18707708

Drug Therapy Articles

101.

Pazopanib.

Authors: Bukowski RM; Yasothan U; Kirkpatrick P
Journal: Nat Rev Drug Discov. 2010 Jan;9(1):17-8.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=20043026

102.

Managing adverse events associated with sorafenib in renal cell carcinoma.

Authors: Edmonds K; Spencer-Shaw A
Institution: The Royal Marsden Hospital, London.
Journal: Br J Nurs. 2010 Jan 14-27;19(1):58-60.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=20081715

103.

Safety and efficacy results of the advanced renal cell carcinoma sorafenib expanded access program in North America.

Authors: Stadler WM; Figlin RA; McDermott DF; Dutcher JP; Knox JJ; Miller WH Jr; Hainsworth JD; Henderson CA; George JR; Hajdenberg J; Kindwall-Keller TL; Ernstoff MS; Drabkin HA; Curti BD; Chu L; Ryan CW; Hotte SJ; Xia C; Cupit L; Bukowski RM
Institution: Department of Medicine, University of Chicago Medical Center, Chicago, Illinois.
Journal: Cancer. 2010 Mar 1;116(5):1272-80.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=20082451

104.

Sequential therapy with sorafenib and sunitinib in renal cell carcinoma.

Authors: Dudek AZ; Zolnierek J; Dham A; Lindgren BR; Szczylik C
Institution: Department of Medicine, Division of Hematology, Oncology and Transplantation, University of Minnesota, Minneapolis, Minnesota 55455, USA. dudek002@umn.edu
Journal: Cancer. 2009 Jan 1;115(1):61-7.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=19051290

105.

Everolimus: in advanced renal cell carcinoma.

Authors: Garnock-Jones KP; Keating GM
Institution: Adis, Auckland, New Zealand. demail@adis.co.nz
Journal: Drugs. 2009 Oct 22;69(15):2115-24. doi: 10.2165/11203770-000000000-00000.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=19791829

106.

A population-based study evaluating the impact of sunitinib on overall survival in the treatment of patients with metastatic renal cell cancer.

Authors: Heng DY; Chi KN; Murray N; Jin T; Garcia JA; Bukowski RM; Rini BI; Kollmannsberger C
Institution: Department of Medical Oncology, Tom Baker Cancer Centre, Calgary, Alberta, Canada.
Journal: Cancer. 2009 Feb 15;115(4):776-83.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=19127560

107.

Targeted therapy for advanced renal cell carcinoma.

Authors: Coppin C; Le L; Porzsolt F; Wilt T
Journal: Cochrane Database Syst Rev. 2008 Apr 16;(2):CD006017.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18425931

108.

Predicting outcome to VEGF-targeted therapy in metastatic clear-cell renal cell carcinoma: data from recent studies.

Authors: Golshayan AR; Brick AJ; Choueiri TK
Institution: Cleveland Clinic Taussig Cancer Center, 9500 Euclid Avenue, R-35, Cleveland, OH 44195, USA.
Journal: Future Oncol. 2008 Feb;4(1):85-92.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18241003

109.

Prospective comparison of sorafenib and sunitinib for second-line treatment of cytokine-refractory kidney cancer patients.

Authors: Herrmann E; Bierer S; Gerss J; Kopke T; Hertle L; Wulfing C
Institution: Department of Urology, University of Munster, Munster, Germany.
Journal: Oncology. 2008;74(3-4):216-22. Epub 2008 Aug 20.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18714170

110.

Role of sunitinib and sorafenib in the treatment of metastatic renal cell carcinoma.

Authors: Hiles JJ; Kolesar JM
Institution: School of Pharmacy, University of Wisconsin, Madison, WI 53705, USA.
Journal: Am J Health Syst Pharm. 2008 Jan 15;65(2):123-31.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18192256

111.

Sunitinib therapy in renal cell carcinoma.

Authors: O'Brien MF; Russo P; Motzer RJ
Institution: Urology Service, Department of Surgery, Memorial Sloan Kettering Cancer Center, New York, NY 10021, USA.
Journal: BJU Int. 2008 Jun;101(11):1339-42. Epub 2008 Feb 18.
Abstract Link: **ABSTRACT NOT AVAILABLE**

112.

High-dose-intensity MVAC for Advanced Renal Medullary Carcinoma: Report of Three Cases and Literature Review.

Authors: Rathmell WK; Monk JP
Institution: Department of Medicine, Division of Hematology and Oncology, Lineberger Comprehensive Cancer Center, University of North Carolina at Chapel Hill School of Medicine, Chapel Hill, North Carolina 27599-7295, USA. Rathmell@med.unc.edu
Journal: Urology. 2008 Sep;72(3):659-63. Epub 2008 Jul 23.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18649931

113.

Targeted therapy for metastatic renal cell carcinoma: a home run or a work in progress?

Authors: Rini BI; Bukowski RM
Institution: Department of Solid Tumor Oncology, Cleveland Clinic Taussig Cancer Institute, Glickman Urological and Kidney Institute, Cleveland, Ohio 44195, USA. rinib2@ccf.org
Journal: Oncology (Williston Park). 2008 Apr 15;22(4):388-96; discussion 396, 402-3, 476 passim.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18472614

114.

Update on the use of mTOR inhibitors in renal cell carcinoma.

Author: Rini BI
Journal: Clin Adv Hematol Oncol. 2008 Oct;6(10):722-4.
Abstract Link: **ABSTRACT NOT AVAILABLE**

115.

Cardiac toxicity of sunitinib and sorafenib in patients with metastatic renal cell carcinoma.

Authors: Schmidinger M; Zielinski CC; Vogl UM; Bojic A; Bojic M; Schukro C; Ruhsam M; Hejna M; Schmidinger H
Institution: Clinical Division of Oncology, Department of Medicine I and Cancer Center, Medical University of Vienna, Vienna, Austria. manuela.schmidinger@meduniwien.ac.at
Journal: J Clin Oncol. 2008 Nov 10;26(32):5204-12. Epub 2008 Oct 6.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18838713

116.

New anti-angiogenic targeted therapy in advanced renal cell carcinoma (RCC): current status and future prospects.

Authors: Sciarra A; Gentile V; Salciccia S; Alfarone A; Di Silverio F
Institution: Department U Bracci, University Sapienza, Rome, Italy. sciarrajr@hotmail.com
Journal: Rev Recent Clin Trials. 2008 May;3(2):97-103.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18474019

117.

Pazopanib, a potent orally administered small-molecule multitargeted tyrosine kinase inhibitor for renal cell carcinoma.

Authors: Sonpavde G; Hutson TE; Sternberg CN
Institution: Genitourinary Oncology Program, Texas Oncology, PA, US Oncology Research, 501 Medical Center Blvd, Webster, TX 77598, USA. guru.sonpavde@usoncology.com
Journal: Expert Opin Investig Drugs. 2008 Feb;17(2):253-61.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18230058

118.

Axitinib for renal cell carcinoma.

Authors: Sonpavde G; Hutson TE; Rini BI
Institution: Genitourinary Oncology Program, Texas Oncology PA, Houston, TX 77598, USA.
Journal: Expert Opin Investig Drugs. 2008 May;17(5):741-8.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18447599

119.

Cardiotoxicity associated with the cancer therapeutic agent sunitinib malate.

Authors: Telli ML; Witteles RM; Fisher GA; Srinivas S
Institution: Division of Medical Oncology, Department of Medicine, Stanford University, 875 Blake Wilbur Drive, Stanford, CA 94305, USA.
Journal: Ann Oncol. 2008 Sep;19(9):1613-8. Epub 2008 Apr 23.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18436521

120.

Sunitinib for treatment of advanced renal cell cancer: primary tumor response.

Authors: van der Veldt AA; Meijerink MR; van den Eertwegh AJ; Bex A; de Gast G; Haanen JB; Boven E
Institution: Department of Medical Oncology, VU University medical center, Antoni van Leeuwenhoek Hospital, Amsterdam, the Netherlands.
Journal: Clin Cancer Res. 2008 Apr 15;14(8):2431-6.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18413834

Surgical Therapy Articles

121.

Unintended consequences of laparoscopic surgery on partial nephrectomy for kidney cancer.

Authors: Abouassaly R; Alibhai SM; Tomlinson G; Timilshina N; Finelli A
Institution: Division of Urologic Oncology, Princess Margaret Hospital and Department of Health Policy, University of Toronto, Toronto, Ontario, Canada.
Journal: J Urol. 2010 Feb;183(2):467-72. Epub 2009 Dec 14.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=20006875

122.

Laparoscopic renal cryoablation: 8-year, single surgeon outcomes.

Authors: Aron M; Kamoi K; Remer E; Berger A; Desai M; Gill I
Institution: Catherine and Joseph Aresty Department of Urology, University of Southern California Institute of Urology, Keck School of Medicine, University of Southern California, Los Angeles, California 90033, USA. monisharon@hotmail.com
Journal: J Urol. 2010 Mar;183(3):889-95. Epub 2010 Jan 20.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=20089263

123.

Outcome of stage T2 or greater renal cell cancer treated with partial nephrectomy.

Authors: Breau RH; Crispen PL; Jimenez RE; Lohse CM; Blute ML; Leibovich BC
Institution: Department of Urology, Mayo Clinic, Rochester, Minnesota 55901, USA.
Journal: J Urol. 2010 Mar;183(3):903-8. Epub 2010 Jan 18.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=20083271

124.

Nephron-sparing surgery is equally effective to radical nephrectomy for T1BN0M0 renal cell carcinoma: a population-based assessment.

Authors: Crepel M; Jeldres C; Perrotte P; Capitanio U; Isbarn H; Shariat SF; Liberman D; Sun M; Lughezzani G; Arjane P; Widmer H; Graefen M; Montorsi F; Patard JJ; Karakiewicz PI
Institution: Cancer Prognostics and Health Outcomes Unit, University of Montreal, Montreal, Quebec, Canada.
Journal: Urology. 2010 Feb;75(2):271-5. Epub 2009 Dec 4.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=19962740

125.

Oncological outcomes of partial nephrectomy for multifocal renal cell carcinoma greater than 4 cm.

Authors: Gupta GN; Peterson J; Thakore KN; Pinto PA; Linehan WM; Bratslavsky G
Institution: Urologic Oncology Branch, National Cancer Institute, National Institutes of Health, Bethesda, Maryland, USA.
Journal: J Urol. 2010 Jul;184(1):59-63. Epub 2010 May 15.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=20478582

126.

7-year oncological outcomes after laparoscopic and open partial nephrectomy.

Authors: Lane BR; Gill IS
Institution: Glickman Urological & Kidney Institute, Cleveland Clinic, Cleveland, Ohio, USA. blane@mmpc.com
Journal: J Urol. 2010 Feb;183(2):473-9. Epub 2009 Dec 14.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=20006866

127.

Prolonged response to cytoreductive surgery and sunitinib in an elderly patient with synchronous multiple metastases from renal cell carcinoma.

Authors: Locatelli MC; Miedico A; D'Antona A; Longo G; Maggioni M; Maggioni A; Tombolini P; Tabiadon D
Institution: Department of Oncology, San Carlo Borromeo Hospital, Milan, Italy. locatellimc@hotmail.com
Journal: Tumori. 2010 May-Jun;96(3):478-82.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=20845812

128.

Analysis of long-term survival in patients with localized renal cell carcinoma: laparoscopic versus open radical nephrectomy.

Authors: Luo JH; Zhou FJ; Xie D; Zhang ZL; Liao B; Zhao HW; Dai YP; Chen LW; Chen W
Institution: Department of Urology, The First Affiliated Hospital, Sun Yat-sen University, No. 58, ZhongShan 2nd Road, Guangzhou, 510080, China.
Journal: World J Urol. 2010 Jun;28(3):289-93. Epub 2009 Nov 15.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=19916010

129.

The role of surgery in clinical management of patients with metastatic papillary renal cell carcinoma.

Authors: Steiner T; Kirchner H; Siebels M; Doehn C; Heynemann H; Varga Z; Rohde D; Schubert J; Jocham D; Stief C; Fornara P; Hofmann R; Loening S; Roigas J
Institution: Department of Urology, University Hospital Jena, Lessingstr 1, 07743 Jena, Germany. Thomas.steiner@med.uni-jena.de
Journal: J Cancer Res Clin Oncol. 2010 Jun;136(6):905-10. Epub 2009 Dec 12.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=20012752

130.

Laparoscopic radical nephrectomy for renal cell carcinoma: oncological outcomes at 10 years or more.

Authors: Berger A; Brandina R; Atalla MA; Herati AS; Kamoi K; Aron M; Haber GP; Stein RJ; Desai MM; Kavoussi LR; Gill IS
Institution: USC Institute of Urology, Keck School of Medicine, University of Southern California, Los Angeles, California 90080, USA.
Journal: J Urol. 2009 Nov;182(5):2172-6. Epub 2009 Sep 16.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=19758651

131.

Outcome of nephron-sparing surgery for T1b renal cell carcinoma.

Authors: Joniau S; Vander Eeckt K; Srirangam SJ; Van Poppel H
Institution: Department of Urology, University Hospitals Leuven, Leuven, Belgium.
Journal: BJU Int. 2009 May;103(10):1344-8. Epub 2008 Nov 25.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=19040528

132.

Conditional survival predictions after nephrectomy for renal cell carcinoma.

Authors: Karakiewicz PI; Suardi N; Capitanio U; Isbarn H; Jeldres C; Perrotte P; Sun M; Ficarra V; Zigeuner R; Tostain J; Mejean A; Cindolo L; Pantuck AJ; Belldegrun AS; Zini L; de la Taille A; Chautard D; Descotes JL; Shariat SF; Valeri A; Mulders PF; Lang H; Lechevallier E; Patard JJ
Institution: Cancer Prognostics and Health Outcomes Unit, University of Montreal, Montreal, Quebec, Canada. pierre.karakiewicz@umontreal.ca
Journal: J Urol. 2009 Dec;182(6):2607-12. Epub 2009 Oct 17.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=19836798

133.

Long-term outcomes after nephron sparing surgery for renal cell carcinoma larger than 4 cm.

Authors: Peycelon M; Hupertan V; Comperat E; Renard-Penna R; Vaessen C; Conort P; Bitker MO; Chartier-Kastler E; Richard F; Roupret M
Institution: Department of Urology, Groupement Hospitalier Universitaire Est (Pitie-Tenon), Assistance-Publique Hopitaux de Paris and Faculte de Medecine Pierre et Marie Curie, University Paris VI, Paris, France.
Journal: J Urol. 2009 Jan;181(1):35-41. Epub 2008 Nov 13.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=19012929

134.

Laparoscopic radical versus partial nephrectomy for tumors >4 cm: intermediate-term oncologic and functional outcomes.

Authors: Simmons MN; Weight CJ; Gill IS
Institution: Department of Urology, Center for Laparoscopic and Robotic Surgery, Glickman Urological and Kidney Institute, Cleveland Clinic, Cleveland, Ohio 44195, USA.
Journal: Urology. 2009 May;73(5):1077-82.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=19394509

135.

Surgical resection of renal cell carcinoma after targeted therapy.

Authors: Thomas AA; Rini BI; Stephenson AJ; Garcia JA; Fergany A; Krishnamurthi V; Novick AC; Gill IS; Klein EA; Zhou M; Campbell SC
Institution: Glickman Urological and Kidney Institute, Cleveland, Ohio 44195, USA.
Journal: J Urol. 2009 Sep;182(3):881-6. Epub 2009 Jul 17.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=19616232

136.

Robotic partial nephrectomy versus laparoscopic partial nephrectomy for renal cell carcinoma: single-surgeon analysis of >100 consecutive procedures.

Authors: Wang AJ; Bhayani SB
Institution: Division of Urology, Washington University School of Medicine, St. Louis, Missouri 63110, USA.
Journal: Urology. 2009 Feb;73(2):306-10. Epub 2008 Nov 26.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=19038419

137.

Population-based assessment of survival after cytoreductive nephrectomy versus no surgery in patients with metastatic renal cell carcinoma.

Authors: Zini L; Capitanio U; Perrotte P; Jeldres C; Shariat SF; Arjane P; Widmer H; Montorsi F; Patard JJ; Karakiewicz PI
Institution: Cancer Prognostics and Health Outcomes Unit, University of Montreal Health Center, Montreal, Quebec, Canada.
Journal: Urology. 2009 Feb;73(2):342-6. Epub 2008 Nov 28.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=19041122

138.

Nephron-sparing surgery versus radical nephrectomy in the treatment of intracapsular renal cell carcinoma up to 7cm.

Authors: Antonelli A; Cozzoli A; Nicolai M; Zani D; Zanotelli T; Perucchini L; Cunico SC; Simeone C
Institution: Department of Urology, University of Brescia, Brescia, Italy. alxanto@hotmail.com <alxanto@hotmail.com>
Journal: Eur Urol. 2008 Apr;53(4):803-9. Epub 2007 Nov 20.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18036730

139.

Oncological outcomes of hand-assisted laparoscopic radical nephrectomy for clinically localized renal cell carcinoma: a single-institution study with >or=3 years of follow-up.

Authors: Bandi G; Christian MW; Hedican SP; Moon TD; Nakada SY
Institution: Division of Urology, Department of Surgery, University of Wisconsin Medical School, Madison, WI 53792, USA.
Journal: BJU Int. 2008 Feb;101(4):459-62. Epub 2007 Oct 17.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=17941924

140.

Long-term survival in bilateral renal cell carcinoma: a retrospective single-institutional analysis of 101 patients after surgical treatment.

Authors: Becker F; Siemer S; Tzavaras A; Suttmann H; Stoeckle M
Institution: Department of Urology, University of Saarland, Homburg, Germany. frank.becker@uniklinikum-saarland.de
Journal: Urology. 2008 Aug;72(2):349-53. Epub 2008 May 15.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18485459

141.

Laparoscopic partial nephrectomy in the treatment of renal cell carcinoma: a minimally invasive means to nephron preservation.

Authors: Blitstein J; Ghavamian R
Institution: Montefiore Medical Center/Albert Einstein College of Medicine, Bronx, NY, USA. jbliste@montefiore.org
Journal: Expert Rev Anticancer Ther. 2008 Jun;8(6):921-7.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18533801

142.

Laparoscopic radical nephrectomy: long-term outcomes.

Author: Borin JF
Institution: University of Maryland, Division of Urology, Baltimore, Maryland, USA. jborin@smail.umaryland.edu
Journal: Curr Opin Urol. 2008 Mar;18(2):139-44.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18303533

143.

Nephron sparing surgery is a feasible and efficient treatment of T1a renal cell carcinoma in kidney transplant: a prospective series from a single center.

Authors: Chambade D; Meria P; Tariel E; Verine J; De Kerviler E; Peraldi MN; Glotz D; Desgrandchamps F; Mongiat-Artus P
Institution: Department of Urology, Paris 7 University Saint-Louis Hospital, Paris, France.
Journal: J Urol. 2008 Nov;180(5):2106-9. Epub 2008 Sep 18.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18804233

144.

Seven years after laparoscopic radical nephrectomy: oncologic and renal functional outcomes.

Authors: Colombo JR Jr; Haber GP; Jelovsek JE; Lane B; Novick AC; Gill IS
Institution: Section of Laparoscopic and Robotic Surgery, Glickman Urological Institute, Cleveland Clinic, Cleveland, Ohio 44195, USA. betocolombo@hotmail.com
Journal: Urology. 2008 Jun;71(6):1149-54. Epub 2008 Mar 3.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18313111

145.

Surgery insight: management of renal cell carcinoma with associated inferior vena cava thrombus.

Authors: Karnes RJ; Blute ML
Institution: Department of Urology, Mayo Clinic, Rochester, MN 55905, USA.
Journal: Nat Clin Pract Urol. 2008 Jun;5(6):329-39. Epub 2008 May 13.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18477994

146.

Importance of surgical margins in the management of renal cell carcinoma.

Authors: Lam JS; Bergman J; Breda A; Schulam PG
Institution: Department of Urology, David Geffen School of Medicine at University of California-Los Angeles, Los Angeles, CA 90095, USA.
Journal: Nat Clin Pract Urol. 2008 Jun;5(6):308-17. Epub 2008 May 13.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18477995

147.

Elective nephron sparing surgery for renal cell carcinoma larger than 4 cm.

Authors: Pahernik S; Roos F; Rohrig B; Wiesner C; Thuroff JW
Institution: Department of Urology, Johannes Gutenberg University, Mainz, Germany. Sascha.Pahernik@med.uni-heidelberg.de
Journal: J Urol. 2008 Jan;179(1):71-4; discussion 74. Epub 2007 Nov 12.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=17997423

148.

Laparoscopic versus open partial nephrectomy: analysis of the current literature.

Authors: Porpiglia F; Volpe A; Billia M; Scarpa RM
Institution: Department of Urology, San Luigi Hospital, Orbassano, University of Turin, Turin, Italy. porpiglia@libero.it <porpiglia@libero.it>
Journal: Eur Urol. 2008 Apr;53(4):732-42; discussion 742-3. Epub 2008 Jan 16.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18222599

149.

Retroperitoneal laparoscopic partial nephrectomy: surgical experience and outcomes.

Authors: Pyo P; Chen A; Grasso M
Institution: Saint Vincent Catholic Medical Campus, New York Medical College, New York 10595, USA. pyo40@aol.com
Journal: J Urol. 2008 Oct;180(4):1279-83. Epub 2008 Aug 15.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18707736

150.

Laparoscopic partial nephrectomy for hilar tumors: evaluation of short-term oncologic outcome.

Authors: Richstone L; Montag S; Ost M; Reggio E; Permpongkosol S; Kavoussi LR
Institution: Smith Institute for Urology, North Shore-Long Island Jewish Health System, New Hyde Park, New York 11040, USA. Lrichsto@yahoo.com
Journal: Urology. 2008 Jan;71(1):36-40.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18242361

151.

Survival rates after resection for localized kidney cancer: 1989 to 2004.

Authors: Russo P; Jang TL; Pettus JA; Huang WC; Eggener SE; O'Brien MF; Karellas ME; Karanikolas NT; Kagiwada MA
Institution: Urology Service, Department of Surgery, Sidney Kimmel Center for Prostate and Urologic Cancers, Memorial Sloan-Kettering Cancer Center, New York, NY 10021, USA. russop@mskcc.org
Journal: Cancer. 2008 Jul 1;113(1):84-96.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18470927

152.

Radical nephrectomy for pT1a renal masses may be associated with decreased overall survival compared with partial nephrectomy.

Authors: Thompson RH; Boorjian SA; Lohse CM; Leibovich BC; Kwon ED; Cheville JC; Blute ML
Institution: Department of Urology, Mayo Medical School and Mayo Clinic, Rochester, Minnesota, USA.
Journal: J Urol. 2008 Feb;179(2):468-71; discussion 472-3.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18076931

153.

Clinical experience with laparoscopic radical nephrectomy for renal cell carcinoma.

Authors: Tsujihata M; Nonomura N; Momohara C; Nishimura K; Tsujimura A; Okuyama A
Institution: Department of Urology, Osaka University Graduate School of Medicine, Suita, Japan. tsujihata@uro.med.osaka-u.ac.jp
Journal: Urol Int. 2008;81(3):301-5. Epub 2008 Oct 16.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18931547

154.

Surgical management of large renal tumors.

Authors: Wszolek MF; Wotkowicz C; Libertino JA
Institution: Department of Urology, Lahey Clinic, Burlington, MA 01805, USA.
Journal: Nat Clin Pract Urol. 2008 Jan;5(1):35-46.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18185512

Clinical Trials Articles

155.

Activity of a multitargeted chemo-switch regimen (sorafenib, gemcitabine, and metronomic capecitabine) in metastatic renal-cell carcinoma: a phase 2 study (SOGUG-02-06).

Authors: Bellmunt J; Trigo JM; Calvo E; Carles J; Perez-Gracia JL; Rubio J; Virizuela JA; Lopez R; Lazaro M; Albanell J
Institution: Medical Oncology Service, University Hospital del Mar-IMIM, Barcelona, Spain. jbellmunt@imas.imim.es
Journal: Lancet Oncol. 2010 Apr;11(4):350-7. Epub 2010 Feb 15.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=20163987

156.

Positive surgical margin appears to have negligible impact on survival of renal cell carcinomas treated by nephron-sparing surgery.

Authors: Bensalah K; Pantuck AJ; Rioux-Leclercq N; Thuret R; Montorsi F; Karakiewicz PI; Mottet N; Zini L; Bertini R; Salomon L; Villers A; Soulie M; Bellec L; Rischmann P; De la Taille A; Avakian R; Crepel M; Ferriere JM; Bernhard JC; Dujardin T; Pouliot F; Rigaud J; Pfister C; Albouy B; Guy L; Joniau S; van Poppel H; Lebret T; Culty T; Saint F; Zisman A; Raz O; Lang H; Spie R; Wille A; Roigas J; Aguilera A; Rambeaud B; Martinez Pineiro L; Nativ O; Farfara R; Richard F; Roupret M; Doehn C; Bastian PJ; Muller SC; Tostain J; Belldegrun AS; Patard JJ
Institution: Department of Urology, University of Rennes, Rennes, France. karim.bensalah@chu-rennes.fr
Journal: Eur Urol. 2010 Mar;57(3):466-71. Epub 2009 Mar 31.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=19359089

157.

Phase III trial of bevacizumab plus interferon alfa-2a in patients with metastatic renal cell carcinoma (AVOREN): final analysis of overall survival.

Authors: Escudier B; Bellmunt J; Negrier S; Bajetta E; Melichar B; Bracarda S; Ravaud A; Golding S; Jethwa S; Sneller V
Institution: Unite Immunotherapie, Institut Gustave Roussy, 39 rue Camille Desmoulins, 94805 Villejuif Cedex, France. escudier@igr.fr
Journal: J Clin Oncol. 2010 May 1;28(13):2144-50. Epub 2010 Apr 5.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=20368553

158.

Interferon alfa-2a versus combination therapy with interferon alfa-2a, interleukin-2, and fluorouracil in patients with untreated metastatic renal cell carcinoma (MRC RE04/EORTC GU 30012): an open-label randomised trial.

Authors: Gore ME; Griffin CL; Hancock B; Patel PM; Pyle L; Aitchison M; James N; Oliver RT; Mardiak J; Hussain T; Sylvester R; Parmar MK; Royston P; Mulders PF
Institution: Royal Marsden Hospital NHS Trust, London, UK. martin.gore@rmh.nhs.uk
Journal: Lancet. 2010 Feb 20;375(9715):641-8. Epub 2010 Feb 10.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=20153039

159.

Phase II trial of bevacizumab and everolimus in patients with advanced renal cell carcinoma.

Authors: Hainsworth JD; Spigel DR; Burris HA 3rd; Waterhouse D; Clark BL; Whorf R
Institution: Sarah Cannon Research Institute, 3322 West End Ave, Suite 900, Nashville, TN 37203, USA. jhainsworth@tnonc.com
Journal: J Clin Oncol. 2010 May 1;28(13):2131-6. Epub 2010 Apr 5.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=20368560

160.

Efficacy and safety of pazopanib in patients with metastatic renal cell carcinoma.

Authors: Hutson TE; Davis ID; Machiels JP; De Souza PL; Rottey S; Hong BF; Epstein RJ; Baker KL; McCann L; Crofts T; Pandite L; Figlin RA
Institution: Baylor-Sammons/Texas Oncology Physician's Association, Dallas, TX 75246, USA. thomas.hutson@usoncology.com
Journal: J Clin Oncol. 2010 Jan 20;28(3):475-80. Epub 2009 Dec 14.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=20008644

161.

Upfront, randomized, phase 2 trial of sorafenib versus sorafenib and low-dose interferon alfa in patients with advanced renal cell carcinoma: clinical and biomarker analysis.

Authors: Jonasch E; Corn P; Pagliaro LC; Warneke CL; Johnson MM; Tamboli P; Ng C; Aparicio A; Ashe RG; Wright JJ; Tannir NM
Institution: Department of Genitourinary Medical Oncology, The University of Texas M. D. Anderson Cancer Center, Houston, TX 77030, USA. ejonasch@mdanderson.org
Journal: Cancer. 2010 Jan 1;116(1):57-65.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=19862815

162.

Long-term survival of patients with metastatic renal cell carcinoma treated with pulsed dendritic cells.

Authors: Kraemer M; Hauser S; Schmidt-Wolf IG
Institution: Center for Integrated Oncology (CIO), Department of Internal Medicine III, University Hospital Bonn, Sigmund-Freud-Str. 25, 53105 Bonn, Germany.
Journal: Anticancer Res. 2010 Jun;30(6):2081-6.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=20651354

163.

Phase III, randomised, multicentre trial of maintenance immunotherapy with low-dose interleukin-2 and interferon-alpha for metastatic renal cell cancer.

Authors: Passalacqua R; Buzio C; Buti S; Porta C; Labianca R; Pezzuolo D; Camisa R; Sabbatini R; Benecchi L; Messina C; Cengarle R; Vaglio A; Dalla Chiesa M; Tomasello G; Caminiti C
Institution: Divisione di Medicina e Oncologia Medica, Azienda Istituti Ospitalieri di Cremona, Viale Concordia 1, 26100 Cremona, Italy.
Journal: Cancer Immunol Immunother. 2010 Apr;59(4):553-61. Epub 2009 Sep 25.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=19779715

164.

Phase III trial of bevacizumab plus interferon alfa versus interferon alfa monotherapy in patients with metastatic renal cell carcinoma: final results of CALGB 90206.

Authors: Rini BI; Halabi S; Rosenberg JE; Stadler WM; Vaena DA; Archer L; Atkins JN; Picus J; Czaykowski P; Dutcher J; Small EJ
Institution: Department of Solid Tumor Oncology, Cleveland Clinic Taussig Cancer Institute, 9500 Euclid Ave/Desk R35, Cleveland, OH 44195, USA. rinib2@ccf.org
Journal: J Clin Oncol. 2010 May 1;28(13):2137-43. Epub 2010 Apr 5.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=20368558

165.

Pazopanib in locally advanced or metastatic renal cell carcinoma: results of a randomized phase III trial.

Authors: Sternberg CN; Davis ID; Mardiak J; Szczylik C; Lee E; Wagstaff J; Barrios CH; Salman P; Gladkov OA; Kavina A; Zarba JJ; Chen M; McCann L; Pandite L; Roychowdhury DF; Hawkins RE
Institution: FACP, Department of Medical Oncology, San Camillo Forlanini Hospital, Circonvallazione Gianicolense 87, Rome, Italy 00152. cstern@mclink.it
Journal: J Clin Oncol. 2010 Feb 20;28(6):1061-8. Epub 2010 Jan 25.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=20100962

166.

A phase-II study of combination of pegylated interferon alfa-2a and capecitabine in locally advanced or metastatic renal cell cancer.

Authors: Sunela KL; Koskinen S; Kellokumpu-Lehtinen PL
Institution: Department of Oncology, Tampere University Hospital, P.O. Box 2000, 33521 Tampere, Finland. kaisa.sunela@pshp.fi
Journal: Cancer Chemother Pharmacol. 2010 May;66(1):59-67. Epub 2009 Sep 22.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=19771431

167.

Quality of life in patients with advanced renal cell carcinoma treated with temsirolimus or interferon-alpha.

Authors: Yang S; de Souza P; Alemao E; Purvis J
Institution: Global Access, Pfizer, Collegeville, Pennsylvania, USA.
Journal: Br J Cancer. 2010 May 11;102(10):1456-60.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=20461090

168.

Patient-reported outcomes in a phase III, randomized study of sunitinib versus interferon-{alpha} as first-line systemic therapy for patients with metastatic renal cell carcinoma in a European population.

Authors: Castellano D; del Muro XG; Perez-Gracia JL; Gonzalez-Larriba JL; Abrio MV; Ruiz MA; Pardo A; Guzman C; Cerezo SD; Grande E
Institution: Oncology Department, University Hospital, Madrid, Spain.
Journal: Ann Oncol. 2009 Nov;20(11):1803-12. Epub 2009 Jun 23.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=19549706

169.

Randomized phase II trial of first-line treatment with sorafenib versus interferon Alfa-2a in patients with metastatic renal cell carcinoma.

Authors: Escudier B; Szczylik C; Hutson TE; Demkow T; Staehler M; Rolland F; Negrier S; Laferriere N; Scheuring UJ; Cella D; Shah S; Bukowski RM
Institution: Institut Gustave Roussy, 39 Rue Camille Desmoulins, 94805, Villejuif, France. escudier@igr.fr
Journal: J Clin Oncol. 2009 Mar 10;27(8):1280-9. Epub 2009 Jan 26.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=19171708

170.

Sorafenib for treatment of renal cell carcinoma: Final efficacy and safety results of the phase III treatment approaches in renal cancer global evaluation trial.

Authors: Escudier B; Eisen T; Stadler WM; Szczylik C; Oudard S; Staehler M; Negrier S; Chevreau C; Desai AA; Rolland F; Demkow T; Hutson TE; Gore M; Anderson S; Hofilena G; Shan M; Pena C; Lathia C; Bukowski RM
Institution: Institut Gustave Roussy, Villejuif, France. escudier@igr.fr
Journal: J Clin Oncol. 2009 Jul 10;27(20):3312-8. Epub 2009 May 18.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=19451442

171.

Phase II study of sunitinib administered in a continuous once-daily dosing regimen in patients with cytokine-refractory metastatic renal cell carcinoma.

Authors: Escudier B; Roigas J; Gillessen S; Harmenberg U; Srinivas S; Mulder SF; Fountzilas G; Peschel C; Flodgren P; Maneval EC; Chen I; Vogelzang NJ
Institution: Unite Immunotherapie, Institut Gustave Roussy, 39 rue Camille Desmoulins, 94805 Villejuif Cedex, France. bernard.escudier@igr.fr
Journal: J Clin Oncol. 2009 Sep 1;27(25):4068-75. Epub 2009 Aug 3.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=19652072

172.

Phase I trial of bevacizumab plus escalated doses of sunitinib in patients with metastatic renal cell carcinoma.

Authors: Feldman DR; Baum MS; Ginsberg MS; Hassoun H; Flombaum CD; Velasco S; Fischer P; Ronnen E; Ishill N; Patil S; Motzer RJ
Institution: Department of Medicine, Memorial Sloan-Kettering Cancer Center, New York, NY 10021, USA.
Journal: J Clin Oncol. 2009 Mar 20;27(9):1432-9. Epub 2009 Feb 17.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=19224847

173.

Phase II study of erlotinib in patients with locally advanced or metastatic papillary histology renal cell cancer: SWOG S0317.

Authors: Gordon MS; Hussey M; Nagle RB; Lara PN Jr; Mack PC; Dutcher J; Samlowski W; Clark JI; Quinn DI; Pan CX; Crawford D
Institution: Premiere Oncology of Arizona, Scottsdale, AZ 85260, USA. mgordon@premiereoncology.com
Journal: J Clin Oncol. 2009 Dec 1;27(34):5788-93. Epub 2009 Nov 2.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=19884559

174.

Safety and efficacy of sunitinib for metastatic renal-cell carcinoma: an expanded-access trial.

Authors: Gore ME; Szczylik C; Porta C; Bracarda S; Bjarnason GA; Oudard S; Hariharan S; Lee SH; Haanen J; Castellano D; Vrdoljak E; Schoffski P; Mainwaring P; Nieto A; Yuan J; Bukowski R
Institution: Royal Marsden Hospital NHS Trust, London, UK. martin.gore@rmh.nhs.uk
Journal: Lancet Oncol. 2009 Aug;10(8):757-63. Epub 2009 Jul 15.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=19615940

175.

Quality of life and perioperative outcomes after retroperitoneoscopic radical nephrectomy (RN), open RN and nephron-sparing surgery in patients with renal cell carcinoma.

Authors: Gratzke C; Seitz M; Bayrle F; Schlenker B; Bastian PJ; Haseke N; Bader M; Tilki D; Roosen A; Karl A; Reich O; Khoder WY; Wyler S; Stief CG; Staehler M; Bachmann A
Institution: Department of Urology, Ludwig-Maximilians-University Munich, Germany. christian.gratzke@med.unimuenchen.de
Journal: BJU Int. 2009 Aug;104(4):470-5. Epub 2009 Feb 23.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=19239445

176.

Prognostic factors for overall survival in patients with metastatic renal cell carcinoma treated with vascular endothelial growth factor-targeted agents: results from a large, multicenter study.

Authors: Heng DY; Xie W; Regan MM; Warren MA; Golshayan AR; Sahi C; Eigl BJ; Ruether JD; Cheng T; North S; Venner P; Knox JJ; Chi KN; Kollmannsberger C; McDermott DF; Oh WK; Atkins MB; Bukowski RM; Rini BI; Choueiri TK
Institution: FRCPC, Department of Medical Oncology, Tom Baker Cancer Center, University of Calgary, Calgary, Alberta, Canada. daniel.heng@cancerboard.ab.ca
Journal: J Clin Oncol. 2009 Dec 1;27(34):5794-9. Epub 2009 Oct 13.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=19826129

177.

Phase II presurgical feasibility study of bevacizumab in untreated patients with metastatic renal cell carcinoma.

Authors: Jonasch E; Wood CG; Matin SF; Tu SM; Pagliaro LC; Corn PG; Aparicio A; Tamboli P; Millikan RE; Wang X; Araujo JC; Arap W; Tannir N
Institution: Department ofGenitourinary Medical Oncology, The University of Texas M. D. Anderson Cancer Center, PO Box 301439, Houston, TX 77230-1439, USA. ejonasch@mdanderson.org
Journal: J Clin Oncol. 2009 Sep 1;27(25):4076-81. Epub 2009 Jul 27.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=19636008

178.

Phase II trial of Modified Vaccinia Ankara (MVA) virus expressing 5T4 and high dose Interleukin-2 (IL-2) in patients with metastatic renal cell carcinoma.

Authors: Kaufman HL; Taback B; Sherman W; Kim DW; Shingler WH; Moroziewicz D; DeRaffele G; Mitcham J; Carroll MW; Harrop R; Naylor S; Kim-Schulze S
Institution: Tumor Immunology Laboratory, Division of Surgical Oncology, Columbia University, New York, NY, USA. hlk2003@columbia.edu
Journal: J Transl Med. 2009 Jan 7;7:2.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=19128501

179.

Predictors of survival of advanced renal cell carcinoma: long-term results from Southwest Oncology Group Trial S8949.

Authors: Lara PN Jr; Tangen CM; Conlon SJ; Flanigan RC; Crawford ED
Institution: University of California at Davis, Sacramento, California, USA. arlauska@med.umich.edu
Journal: J Urol. 2009 Feb;181(2):512-6; discussion 516-7. Epub 2008 Dec 18.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=19100570

180.

Randomized trial of adjuvant thalidomide versus observation in patients with completely resected high-risk renal cell carcinoma.

Authors: Margulis V; Matin SF; Tannir N; Tamboli P; Shen Y; Lozano M; Swanson DA; Jonasch E; Wood CG
Institution: Department of Urology, The University of Texas MD Anderson Cancer Center, Houston, Texas 77030, USA.
Journal: Urology. 2009 Feb;73(2):337-41. Epub 2008 Oct 31.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18950837

181.

Overall survival and updated results for sunitinib compared with interferon alfa in patients with metastatic renal cell carcinoma.

Authors: Motzer RJ; Hutson TE; Tomczak P; Michaelson MD; Bukowski RM; Oudard S; Negrier S; Szczylik C; Pili R; Bjarnason GA; Garcia-del-Muro X; Sosman JA; Solska E; Wilding G; Thompson JA; Kim ST; Chen I; Huang X; Figlin RA
Institution: Memorial Sloan-Kettering Cancer Center, 1275 York Ave, New York, NY 10021, USA. motzerr@mskcc.org
Journal: J Clin Oncol. 2009 Aug 1;27(22):3584-90. Epub 2009 Jun 1.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=19487381

182.

Multicenter phase II trial of combination therapy with meloxicam, a cox-2 inhibitor, and natural interferon-alpha for metastatic renal cell carcinoma.

Authors: Shinohara N; Kumagai A; Kanagawa K; Maruyama S; Abe T; Sazawa A; Nonomura K
Institution: Department of Renal and Genitourinary Surgery, Hokkaido University Graduate School of Medicine, North-15, West-7, Kitaku, Sapporo 060-8638, Japan. nozomis@mbj.nifty.com
Journal: Jpn J Clin Oncol. 2009 Nov;39(11):720-6. Epub 2009 Aug 14.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=19684042

183.

Partial versus radical nephrectomy for 4 to 7 cm renal cortical tumors.

Authors: Thompson RH; Siddiqui S; Lohse CM; Leibovich BC; Russo P; Blute ML
Institution: Department of Urology, Mayo Medical School and Mayo Clinic, Rochester, Minnesota 55902, USA.
Journal: J Urol. 2009 Dec;182(6):2601-6. Epub 2009 Oct 17.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=19836797

184.

Cancer-specific and non-cancer-related mortality rates in European patients with T1a and T1b renal cell carcinoma.

Authors: Zini L; Patard JJ; Capitanio U; Crepel M; de La Taille A; Tostain J; Ficarra V; Bernhard JC; Ferriere JM; Pfister C; Villers A; Montorsi F; Karakiewicz PI
Institution: Cancer Prognostics and Health Outcomes Unit, University of Montreal Health Center, Montreal, QC, Canada.
Journal: BJU Int. 2009 Apr;103(7):894-8. Epub 2008 Dec 2.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=19076131

185.

A population-based comparison of survival after nephrectomy vs nonsurgical management for small renal masses.

Authors: Zini L; Perrotte P; Jeldres C; Capitanio U; Duclos A; Jolivet-Tremblay M; Arjane P; Peloquin F; Pharand D; Villers A; Montorsi F; Patard JJ; Karakiewicz PI
Institution: Cancer Prognostics and Health Outcomes Unit, University of Montreal Health Center, Montreal, QC, Canada.
Journal: BJU Int. 2009 Apr;103(7):899-904; discussion 904. Epub 2009 Jan 20.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=19154499

186.

Phase II study of combination thalidomide/interleukin-2 therapy plus granulocyte macrophage-colony stimulating factor in patients with metastatic renal cell carcinoma.

Authors: Amato RJ; Malya R; Rawat A
Institution: Methodist Hospital Research Institute, Genitourinary Oncology Program, 6560 Fannin Street, Suite 2050, Houston, TX 77030, USA. ramato@tmh.tmc.edu
Journal: Am J Clin Oncol. 2008 Jun;31(3):237-43.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18525301

187.

Lenalidomide therapy for metastatic renal cell carcinoma.

Authors: Amato RJ; Hernandez-McClain J; Saxena S; Khan M
Institution: Genitourinary Oncology Program, Methodist Hospital Research Institute, Houston, TX 77030, USA. ramato@tmh.tmc.edu
Journal: Am J Clin Oncol. 2008 Jun;31(3):244-9.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18525302

188.

Motexafin gadolinium for the treatment of metastatic renal cell carcinoma: phase II study results.

Authors: Amato RJ; Jac J; Hernandez-McClain J
Institution: Department of Internal Medicine, Division of Oncology, The University of Texas Health Science Center, Memorial Hermann Hospital, Houston, TX 77030, USA. ramato@uth.tmc.edu
Journal: Clin Genitourin Cancer. 2008 Sep;6(2):73-8.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18824428

189.

Temsirolimus safety profile and management of toxic effects in patients with advanced renal cell carcinoma and poor prognostic features.

Authors: Bellmunt J; Szczylik C; Feingold J; Strahs A; Berkenblit A
Institution: Oncology Department, University Hospital del Mar, Barcelona, Spain. jbellmunt@imas.imim.es
Journal: Ann Oncol. 2008 Aug;19(8):1387-92. Epub 2008 Apr 2.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18385198

190.

Phase-I study of Innacell gammadelta, an autologous cell-therapy product highly enriched in gamma9delta2 T lymphocytes, in combination with IL-2, in patients with metastatic renal cell carcinoma.

Authors: Bennouna J; Bompas E; Neidhardt EM; Rolland F; Philip I; Galea C; Salot S; Saiagh S; Audrain M; Rimbert M; Lafaye-de Micheaux S; Tiollier J; Negrier S
Institution: Department of Medical Oncology, Centre Rene Gauducheau, Nantes-Saint-Herblain, France. j-bennouna@nantes.fnclcc.fr
Journal: Cancer Immunol Immunother. 2008 Nov;57(11):1599-609. Epub 2008 Feb 27.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18301889

191.

Quality of life in patients with metastatic renal cell carcinoma treated with sunitinib or interferon alfa: results from a phase III randomized trial.

Authors: Cella D; Li JZ; Cappelleri JC; Bushmakin A; Charbonneau C; Kim ST; Chen I; Motzer RJ
Institution: Center on Outcomes, Research and Education, Evanston Northwestern Healthcare and Northwestern University Feinberg School of Medicine, 1001 University Place, Evanston, IL 60201, USA. d-cella@northwestern.edu
Journal: J Clin Oncol. 2008 Aug 1;26(22):3763-9.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18669464

192.

Efficacy of sunitinib and sorafenib in metastatic papillary and chromophobe renal cell carcinoma.

Authors: Choueiri TK; Plantade A; Elson P; Negrier S; Ravaud A; Oudard S; Zhou M; Rini BI; Bukowski RM; Escudier B
Institution: Dana-Farber Cancer Institute, Harvard Medical School, Boston, MA 02115, USA. Toni_Choueiri@dfci.harvard.edu
Journal: J Clin Oncol. 2008 Jan 1;26(1):127-31.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18165647

193.

Sorafenib for older patients with renal cell carcinoma: subset analysis from a randomized trial.

Authors: Eisen T; Oudard S; Szczylik C; Gravis G; Heinzer H; Middleton R; Cihon F; Anderson S; Shah S; Bukowski R; Escudier B
Institution: The Royal Marsden Hospital NHS Trust, Sutton, Surrey, UK. tgqe2@cam.ac.uk
Journal: J Natl Cancer Inst. 2008 Oct 15;100(20):1454-63. Epub 2008 Oct 7.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18840822

194.

Phase II trial of pegylated interferon-alpha 2b in patients with advanced renal cell carcinoma.

Authors: Feldman DR; Kondagunta GV; Schwartz L; Patil S; Ishill N; DeLuca J; Russo P; Motzer RJ
Institution: Genitourinary Service, Department of Medicine, Memorial Sloan-Kettering Cancer Center, New York, NY 10021, USA.
Journal: Clin Genitourin Cancer. 2008 Mar;6(1):25-30.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18501079

195.

Phase II trial of B7-1 (CD-86) transduced, cultured autologous tumor cell vaccine plus subcutaneous interleukin-2 for treatment of stage IV renal cell carcinoma.

Authors: Fishman M; Hunter TB; Soliman H; Thompson P; Dunn M; Smilee R; Farmelo MJ; Noyes DR; Mahany JJ; Lee JH; Cantor A; Messina J; Seigne J; Pow-Sang J; Janssen W; Antonia SJ
Institution: H. Lee Moffitt Cancer Center and Research Institute, University of South Florida, Tampa, FL 33612, USA.
Journal: J Immunother. 2008 Jan;31(1):72-80.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18157014

196.

Phase I/II trial of 5-fluorouracil and a noncytotoxic dose level of suramin in patients with metastatic renal cell carcinoma.

Authors: George S; Dreicer R; Au JJ; Shen T; Rini BI; Roman S; Cooney MM; Mekhail T; Elson P; Wientjes GM; Ganapathi R; Bukowski RM
Institution: Division of Hematology and Oncology, Department of Medicine, The University of Texas Health Science Center, San Antonio, TX 78229, USA. georges3@uthscsa.edu
Journal: Clin Genitourin Cancer. 2008 Sep;6(2):79-85.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18824429

197.

Safety and efficacy of CT-guided percutaneous cryoablation for renal cell carcinoma.

Authors: Georgiades CS; Hong K; Bizzell C; Geschwind JF; Rodriguez R
Institution: Department of Vascular Interventional Radiology, Johns Hopkins Hospital, 600 North Wolfe Street, Blalock 544, Baltimore, MD 21287, USA. g_christos@hotmail.com
Journal: J Vasc Interv Radiol. 2008 Sep;19(9):1302-10. Epub 2008 Jul 11.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18725093

198.

The combination of thalidomide and capecitabine in metastatic renal cell carcinoma -- is not the answer.

Authors: Harshman LC; Li M; Srinivas S
Institution: Division of Medical Oncology, Stanford University School of Medicine, Stanford, CA 94305, USA. laurenhs@stanford.edu
Journal: Am J Clin Oncol. 2008 Oct;31(5):417-23.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18838876

199.

Phase 2 trial of talactoferrin in previously treated patients with metastatic renal cell carcinoma.

Authors: Jonasch E; Stadler WM; Bukowski RM; Hayes TG; Varadhachary A; Malik R; Figlin RA; Srinivas S
Institution: Department of Genitourinary Oncology, The University of Texas M. D. Anderson Cancer Center, Houston, TX 77030, USA. ejonasch@mdanderson.org
Journal: Cancer. 2008 Jul 1;113(1):72-7.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18484647

200.

A University of Chicago consortium phase II trial of SB-715992 in advanced renal cell cancer.

Authors: Lee RT; Beekman KE; Hussain M; Davis NB; Clark JI; Thomas SP; Nichols KF; Stadler WM
Institution: Department of Medicine, Section of Hematology/Oncology, The University of Chicago, IL 60637, USA.
Journal: Clin Genitourin Cancer. 2008 Mar;6(1):21-4.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18501078

201.

Phase II trial of capecitabine and weekly docetaxel in metastatic renal cell carcinoma.

Authors: Marur S; Eliason J; Heilbrun LK; Dickow B; Smith DW; Baranowski K; Alhasan S; Vaishampayan U
Institution: Division of Oncology, Department of Medicine, Barbara Ann Karmanos Cancer Institute, Wayne State University, Detroit, Michigan, USA. smarur1@jhmi.edu
Journal: Urology. 2008 Oct;72(4):898-902. Epub 2008 Aug 9.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18692873

202.

First-line bevacizumab combined with reduced dose interferon-alpha2a is active in patients with metastatic renal cell carcinoma.

Authors: Melichar B; Koralewski P; Ravaud A; Pluzanska A; Bracarda S; Szczylik C; Chevreau C; Filipek M; Delva R; Sevin E; Negrier S; McKendrick J; Santoro A; Pisa P; Escudier B
Institution: Charles University Medical School and Teaching Hospital, Hradec Kralove, Czech Republic. melichar@fnhk.cz
Journal: Ann Oncol. 2008 Aug;19(8):1470-6. Epub 2008 Apr 11.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18408224

203.

Efficacy of everolimus in advanced renal cell carcinoma: a double-blind, randomised, placebo-controlled phase III trial.

Authors: Motzer RJ; Escudier B; Oudard S; Hutson TE; Porta C; Bracarda S; Grunwald V; Thompson JA; Figlin RA; Hollaender N; Urbanowitz G; Berg WJ; Kay A; Lebwohl D; Ravaud A
Institution: Memorial Sloan-Kettering Cancer Center, New York, NY, USA. motzerr@mskcc.org
Journal: Lancet. 2008 Aug 9;372(9637):449-56. Epub 2008 Jul 22.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18653228

204.

Phase II trial of lenalidomide in patients with metastatic renal cell carcinoma.

Authors: Patel PH; Kondagunta GV; Schwartz L; Ishill N; Bacik J; DeLuca J; Russo P; Motzer RJ
Institution: Genitourinary Service, Department of Medicine, Memorial Sloan-Kettering Cancer Center, New York, NY 10021, USA.
Journal: Invest New Drugs. 2008 Jun;26(3):273-6. Epub 2007 Dec 27.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18161005

205.

Lapatinib versus hormone therapy in patients with advanced renal cell carcinoma: a randomized phase III clinical trial.

Authors: Ravaud A; Hawkins R; Gardner JP; von der Maase H; Zantl N; Harper P; Rolland F; Audhuy B; Machiels JP; Petavy F; Gore M; Schoffski P; El-Hariry I

Institution: Department of Medical Oncology, Hopital Saint Andre, CHU Bordeaux, 1 rue Jean Burguet, 33075 Bordeaux cedex, France. alain.ravaud@chu-bordeaux.fr

Journal: J Clin Oncol. 2008 May 10;26(14):2285-91.

Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18467719

206.

Neoadjuvant targeted therapy and advanced kidney cancer: observations and implications for a new treatment paradigm.

Authors: Shuch B; Riggs SB; LaRochelle JC; Kabbinavar FF; Avakian R; Pantuck AJ; Patard JJ; Belldegrun AS

Institution: Department of Urology, David Geffen School of Medicine, University of California-Los Angeles, CA 90095, USA.

Journal: BJU Int. 2008 Sep;102(6):692-6. Epub 2008 Apr 10.

Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18410444

207.

A phase II trial of gemcitabine plus capecitabine for metastatic renal cell cancer previously treated with immunotherapy and targeted agents.

Authors: Tannir NM; Thall PF; Ng CS; Wang X; Wooten L; Siefker-Radtke A; Mathew P; Pagliaro L; Wood C; Jonasch E

Institution: Genitourinary Medical Oncology Department, The University of Texas M. D. Anderson Cancer Center, Houston, Texas 77030, USA. ntannir@mdanderson.org

Journal: J Urol. 2008 Sep;180(3):867-72; discussion 872. Epub 2008 Jul 17.

Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18635226

Immunotherapy Articles

208.

Ten-year survival analysis for renal carcinoma patients treated with an autologous tumour lysate vaccine in an adjuvant setting.

Authors: May M; Brookman-May S; Hoschke B; Gilfrich C; Kendel F; Baxmann S; Wittke S; Kiessig ST; Miller K; Johannsen M
Institution: Department of Urology, St. Elisabeth Hospital Straubing, Germany. Matthias.May@klinikum-straubing.de
Journal: Cancer Immunol Immunother. 2010 May;59(5):687-95. Epub 2009 Oct 30.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=19876628

209.

Good response to second-line bevacizumab and interferon-alpha in a sunitinib-refractory patient with metastatic renal cell carcinoma.

Authors: Pastorelli D; Zustovich F; Faggioni G; Zovato S; Donach M; Nicoletto O; Farina M; Furini L; Ceravolo R; Carli P; Lombardi G
Institution: Oncologia Medica, Istituto Oncologico Veneto - IRCCS, Padova, Italy.
Journal: Anticancer Drugs. 2010 Feb;21(2):210-3.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=19952729

210.

Clinical outcome of combined immunotherapy with interferon-alpha and low-dose interleukine-2 for Japanese patients with metastatic renal cell carcinoma.

Authors: Miyake H; Kurahashi T; Takenaka A; Inoue TA; Fujisawa M
Institution: Division of Urology, Kobe University Graduate School of Medicine, Kobe, Japan. hideakimiyake@hotmail.com
Journal: Urol Oncol. 2009 Nov-Dec;27(6):598-603. Epub 2008 Sep 25.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18818106

211.

Chronically administered immunotherapy with low-dose IL-2 and IFN-alpha in metastatic renal cell carcinoma: a feasible option for patients with a good prognostic profile.

Authors: Vaglio A; Alberici F; Maggiore U; Buti S; Potenzoni D; Passalacqua R; Buzio C
Institution: Department of Clinical Medicine, Nephrology and Health Science, University of Parma, Parma, Italy. augusto.vaglio@virgilio.it
Journal: Oncology. 2009;76(1):69-76. Epub 2008 Dec 1.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=19047813

212.

Patient-derived renal cell carcinoma cells fused with allogeneic dendritic cells elicit anti-tumor activity: in vitro results and clinical responses.

Authors: Zhou J; Weng D; Zhou F; Pan K; Song H; Wang Q; Wang H; Li Y; Huang L; Zhang H; Huang W; Xia J
Institution: State Key Laboratory of Oncology in Southern China, 510060, Guangzhou, People's Republic of China.
Journal: Cancer Immunol Immunother. 2009 Oct;58(10):1587-97. Epub 2009 Feb 17.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=19221746

213.

Immunotherapy for renal cell cancer in the era of targeted therapy.

Author: Coppin C
Institution: Medical Oncology, University of British Columbia & BC Cancer Agency, Vancouver, Canada. ccoppin@bccancer.bc.ca
Journal: Expert Rev Anticancer Ther. 2008 Jun;8(6):907-19.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18533800

214.

Establishing the role of cytokine therapy in advanced renal cell carcinoma.

Authors: Gore ME; De Mulder P
Institution: Royal Marsden Hospital, London, UK.
Journal: BJU Int. 2008 May;101(9):1063-70. Epub 2008 Feb 15.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18279450

215.

Vaccination of metastatic renal cell carcinoma patients with autologous tumour-derived vitespen vaccine: clinical findings.

Authors: Jonasch E; Wood C; Tamboli P; Pagliaro LC; Tu SM; Kim J; Srivastava P; Perez C; Isakov L; Tannir N
Institution: Department of Genitourinary Medical Oncology, University of Texas MD Anderson Cancer Center, 1515 Holcombe Boulevard, Unit 1374, Houston, Texas 77030, USA. ejonasch@mdanderson.org
Journal: Br J Cancer. 2008 Apr 22;98(8):1336-41. Epub 2008 Mar 25.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18362942

216.

Chemokines as therapeutic targets in renal cell carcinoma.

Authors: Reckamp KL; Strieter RM; Figlin RA
Institution: Divisions of Medical Oncology and Therapeutics Research & Hematology, City of Hope and Beckman Research Institute, 1500 E Duarte Road, MOB 1001, Duarte, CA 91010, USA. kreckamp@coh.org
Journal: Expert Rev Anticancer Ther. 2008 Jun;8(6):887-93.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18533798

217.

Dendritic cell therapy in combination with interferon-alpha for the treatment of metastatic renal cell carcinoma.

Authors: Tatsugami K; Eto M; Harano M; Hamaguchi M; Miyamoto T; Morisaki T; Furue M; Akashi K; Naito S
Institution: Department of Urology, Graduate School of Medical Sciences, Kyushu University Hospital, Fukuoka, Japan.
Journal: Int J Urol. 2008 Aug;15(8):694-8. Epub 2008 Jun 16.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18564205

Ablation Therapy Articles

218.

Cryoablation or radiofrequency ablation of the small renal mass : a meta-analysis.

Authors: Kunkle DA; Uzzo RG
Institution: Department of Urologic Oncology, Fox Chase Cancer Center, Temple University School of Medicine, Philadelphia, Pennsylvania, USA.
Journal: Cancer. 2008 Nov 15;113(10):2671-80.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18816624

219.

Long-term oncological and overall outcomes of percutaneous radio frequency ablation in high risk surgical patients with a solitary small renal mass.

Authors: Levinson AW; Su LM; Agarwal D; Sroka M; Jarrett TW; Kavoussi LR; Solomon SB
Institution: The James Buchanan Brady Urological Institute, The Johns Hopkins Medical Institutions, Baltimore, Maryland, USA. doctorlevinson@gmail.com
Journal: J Urol. 2008 Aug;180(2):499-504; discussion 504. Epub 2008 Jun 11.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18550123

220.

Ultrasound guided percutaneous microwave ablation for small renal cancer: initial experience.

Authors: Liang P; Wang Y; Zhang D; Yu X; Gao Y; Ni X
Institution: Department of Ultrasound, Chinese People's Liberation Army General Hospital, Beijing, People's Republic of China. liangping301@hotmail.com
Journal: J Urol. 2008 Sep;180(3):844-8; discussion 848. Epub 2008 Jul 16.
Abstract Link: http://www.medifocus.com/abstracts.php?gid=OC016&ID=18635230

4 - Centers of Research

This section of your *MediFocus Guidebook* is a unique directory of doctors, researchers, medical centers, and research institutions with specialized research interest, and in many cases, clinical expertise in the management of this specific medical condition. The *Centers of Research* directory is a valuable resource for quickly identifying and locating leading medical authorities and medical institutions within the United States and other countries that are considered to be at the forefront in clinical research and treatment of this disorder.

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    - Other Countries: information is presented for select countries worldwide listed in alphabetical order. Not all countries may be included.
- **Names of Authors**
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- **Institutional Affiliations**
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5 - Tips on Finding and Choosing a Doctor

Introduction

One of the most important decisions confronting patients who have been diagnosed with a serious medical condition is finding and choosing a qualified physician who will deliver a high level and quality of medical care in accordance with currently accepted guidelines and standards of care. Finding the "best" doctor to manage your condition, however, can be a frustrating and time-consuming experience unless you know what you are looking for and how to go about finding it.

The process of finding and choosing a physician to manage your specific illness or condition is, in some respects, analogous to the process of making a decision about whether or not to invest in a particular stock or mutual fund. After all, you wouldn't invest your hard eared money in a stock or mutual fund without first doing exhaustive research about the stock or fund's past performance, current financial status, and projected future earnings. More than likely you would spend a considerable amount of time and energy doing your own research and consulting with your stock broker before making an informed decision about investing. The same general principle applies to the process of finding and choosing a physician. Although the process requires a considerable investment in terms of both time and energy, the potential payoff can be well worth it--after all, what can be more important than your health and well-being?

This section of your Guidebook offers important tips for how to find physicians as well as suggestions for how to make informed choices about choosing a doctor who is right for you.

Tips for Finding Physicians

Finding a highly qualified, competent, and compassionate physician to manage your specific illness or condition takes a lot of hard work and energy but is an investment that is well-worth the effort. It is important to keep in mind that you are not looking for just any general physician but rather for a physician who has expertise in the treatment and management of your specific illness or condition. Here are some suggestions for where you can turn to identify and locate physicians who specialize in managing your disorder:

- **Your Doctor** - Your family physician (family medicine or internal medicine specialist) is a good starting point for finding a physician who specializes in your illness. Chances are that your doctor already knows several specialists in your geographic area who specialize in your illness and can recommend several names to you. Your doctor can also provide you with information about their qualifications, training, and hospital affiliations.

- **Your Peer Network** - Your family, friends, and co-workers can be a potentially very useful network for helping you find a physician who specializes in your illness. They may know someone else with this condition and may be able to put you in touch with them to find out which doctors they can recommend. If you have friends, neighbors, or relatives who work in hospitals (e.g., nurses, social workers, administrators), they may be a potentially valuable source for helping you find a physician who specializes in your condition.

- **Hospitals and Medical Centers** - Hospitals and medical centers are, potentially, an excellent source for finding physicians who specialize in treating specific diseases. Simply contact hospitals and major medical centers in your city, county, or state and ask if they have anyone on their staff who specializes in treating your condition. When you call, ask to speak to someone in the specific Department that cares for patients with the illness. For example, if you have been diagnosed with cancer, ask to speak with someone in the Department of Hematology and Oncology. If you are not sure which Department treats patients with your specific condition, ask to speak to someone in the Department of Medicine since this Department is the umbrella for many other medical specialties.

- **Organizations and Support Groups** - Many disease organizations and support groups that cater to patients with a specific illness or condition maintain physician referral lists and may be able to recommend doctors in your geographic area who specialize in the treatment and management of your specific disorder. This *MediFocus Guidebook* includes a select listing of disease organizations and support groups that you may wish to contact to ask for a physician referral.

- **Managed Care Plans** - If you belong to a managed care plan, you can obtain a list of physicians who belong to the Plan from the plan's membership services office. Keep in mind, however, that your choices will usually be limited to only those doctors who belong to the Plan. If you decide to go outside the Plan, you will likely have to pay for the doctor's services "out of pocket".

- **Medical Journals** - Many doctors based at major medical centers and universities who have special interest in a particular disease or condition conduct research and publish their findings in leading medical journals. Searching the medical literature can help you identify and locate leading physicians who are recognized as experts in their field about a particular illness. This *MediFocus Guidebook* includes an extensive listing of the names and institutional affiliations of physicians and researchers, in the United States and other countries, who have recently published their studies about this specific medical condition in leading medical journals. You can also conduct your own online search for your illness or condition and identify additional authors and hospitals who specialize in the disease using the PubMed database available at http://www.nlm.nih.gov.

- **American Medical Association** - The American Medical Association (AMA) is the nation's largest professional medical association that represents many doctors in the United States and also provides a free physician locator service called "AMA Physician Select" available at http://dbapps.ama-assn.org/aps/amahg.htm. You can search the AMA database by either "Physician Name" or "Medical Specialty". You can find information about physicians including medical school and residency training, area of specialty, and contact information.

- **American Board of Medical Specialists** - The American Board of Medical Specialists (ABMS) publishes a geographical list of board-certified physicians called the Official ABMS Directory of Board Certified Medical Specialists that is available in most public libraries. Physicians who are listed in the ABMS Directory are board-certified in a medical specialty meaning that they have passed rigorous certification examinations administered by a board of medical specialists. There are 24 specialty boards that are recognized by the ABMS and the AMA. Each candidate applying for board certification must pass a written examination given by the specific specialty board and 15 of the specialty boards also require candidates to pass an oral examination in order to obtain board certification. To find out if a particular physician you are considering is board certified:

    - Visit your local public library and ask for a copy of the Official ABMS Directory of Board Certified Medical Specialists.

    - Search the ABMS web site at http://www.abms.org/login.asp.

    - Call the ABMS toll free at 1-866-275-2267.

- **American Society of Clinical Oncology** - The American Society of Clinical Onclology (ASC)) is the largest professional organization that represents physicians who specialize in treating cancer patients (oncologists). The ASCO provides a searchable database of ASCO members called "Find an Oncologist" that you can access online at http://www.asco.org. You can search the "Find an Oncologist" database for a cancer specialist by name, city, state, country, or specialty area.

- **American Cancer Society** - The American Cancer Society (ACS) is a nationwide voluntary health organization dedicated to helping cancer patients and survivors through research, education, advocacy, and services. The ACS web site http://www.cancer.org is not only an excellent resource for cancer information but also includes a "Message Board" where you can ask questions, exchange ideas, and share stories. The ACS Message Board is also a potentially useful source for locating an oncologist in your geographical area who specializes in your specific type of cancer. You can also contact the ACS toll free by calling 1-800-ACS-2345.

- **National Comprehensive Cancer Network** - The National Comprehensive Cancer Network (NCCN) is an alliance of 19 of the world's leading cancer centers and is dedicated to helping patients and health care professionals make informed decisions about cancer care. You can find a listing of the 19 NCCN member cancer institutions on the NCCN web site at http://www.nccn.org/. You can also search the NCCN "Physician Directory" for doctors located at any of the 19 NCCN member cancer institutions at http://www.nccn.org/physician_directory/SearchPers.asp. This database is an excellent resource for locating leading cancer specialists nationwide who specialize in your specific type of cancer.

- **National Cancer Institute Clinical Trials Database** - The National Cancer Institute (NCI)

is part of the National Institutes of Health (NIH) and coordinates the National Cancer Program which conducts and supports research, training, and a variety of other programs dedicated to prevention and treatment of cancer. The NCI maintains an extensive cancer clinical trials database that you can access at http://www.cancer.gov/clinicaltrials. You can search the database for current clinical trials by type of cancer and even limit your search to clinical trials within you geographical area by putting in your Zip Code. The NCI clinical trials database also provides contact information for the physicians who serve as the study coordinators for each clinical trial. This database is a valuable resource for identifying and locating leading physicians in your local area and around the country who are conducting cutting-edge clinical research about your specific type of cancer.

- **National Center for Complementary and Alternative Medicine** - The National Center for Complementary and Alternative Medicine (NCCAM) is part of the National Institutes of Health (NIH) and is dedicated to exploring complementary and alternative medicine healing practices in the context of rigorous scientific research and methodology. The NCCAM web site http://nccam.nih.gov/ includes publications, frequently asked questions, and useful links to other complementary and alternative medicine resources. If you have questions about complementary and alternative medicine practices for your particular illness or medical condition, you can contact the NCCAM Clearinghouse toll-free in the U.S. at 1-888-644-6226 or 301-519-3153. You can also contact the NCCAM Clearinghouse by E-mail: info@nccam.nih.gov.

- **National Organization for Rare Disorders** - The National Organization for Rare Disorders (NORD) is a federation of voluntary health organizations dedicated to helping patients with rare "orphan" diseases and their families. There are over 6,000 rare or "orphan" diseases that are estimated to affect approximately 25 million Americans. You can search NORD's "Rare Diseases Database" for information about rare diseases at http://www.rarediseases.org/search/rdblist.html. In addition to providing useful information about rare diseases, NORD maintains a confidential "Networking Program" for its members to enable them to communicate with other patients who suffer from the same disorder. To learn more about NORD's Networking Program, you can send an E mail to: orphan@rarediseases.org.

How to Make Informed Choices About Physicians

It has generally been assumed by many people that the longer a physician has been in practice, the more experience, knowledge, and skills he/she has accumulated and, therefore, the higher the quality of care they provide to their patients. Recent research conducted by a group of doctors from the Harvard Medical School, however, seems to strongly suggest that this premise may not be true. In an article published in February 2005 in the *Annals of Internal Medicine* (Volume 142, No. 4, pp. 260-303), the Harvard researchers seriously challenged the common assumption that the more clinical experience a physician has accumulated, the higher the level of medical care they provide to their patients.

In fact, surprisingly, the researchers found an inverse (opposite) relationship between the number

of years that a physician has been in practice (i.e., experience) and the quality of care that the physician provides. In other words, the widely held belief that "practice makes perfect" does not necessarily apply to all physicians and should not be the sole criteria used by patients in their decision analysis for choosing a physician. The underlying message of this study is that the length of time a physician has been in practice does not necessarily equate to a high quality of medical care unless the doctor takes steps to keep abreast with new advances and changing patterns of clinical practice.

Here are some important issues you need to consider and carefully research before making an informed decision about choosing your doctor:

- **Board Certification** - Board certified doctors are required to have extra training after medical school to become specialists in a particular field of medicine and are required to take continuing education courses in order to maintain their board certification status. Check with the American Board of Medical Specialists (ABMS) to determine if a specific physician you are considering is board certified in a particular medical specialty. To find out if a particular physician you are considering is board certified:
    - Visit your local public library and ask for a copy of the Official ABMS Directory of Board Certified Medical Specialists.
    - Search the ABMS web site at http://www.abms.org/login.asp.
    - Call the ABMS toll free at 1-866-275-2267.

- **Experience** - As noted above, research from the Harvard Medical School strongly suggests that how long a physician has been in practice (i.e., experience) does not necessarily correlate with a high level of medical care. The most important issue, therefore, is not how long a doctor has been in practice but rather how much experience the physician has in treating your specific illness or medical condition. Some physicians who have been in practice for many decades may have only treated a small number of patients with the specific disorder, whereas, some younger physicians who have been in practice only a few years may have already treated hundreds of patients with the same disorder. Here are some suggestions for helping you find out about a particular physician's experience in treating your specific illness:
    - Call the physician's office and speak with a staff member such as a nurse or physician's assistant. Ask them for information about how many patients with your specific medical condition the physician treats during the course of a year. Ask how many patients with this condition the physician is currently treating. You will have to call several different physicians' offices in order to have a basis for comparing the numbers of patients.
    - Find out if the physician has published any articles about the condition in reputable medical journals by doing an author search online. You can conduct an online author search using PubMed at http://www.nlm.nih.gov. Simply click on the "PubMed" icon,

select the "author" field from the "Limits" menu, enter the physician's name (last name followed by first initial), and then click on the "Go" button. The author search will retrieve all articles published by the particular physician you are considering.

- Talk with your family physician and ask if he/she can provide you with any information about the particular physician's experience in treating patients with your specific illness or condition.

- Contact disease organizations and support groups that specialize in helping patients with your specific disorder and ask if they can provide you with any information, including experience, about the physician you are considering.

- **Medical School Affiliation** - Find out if the physician you are considering also has a joint faculty appointment at a medical school. In general, practicing community physicians with a joint academic appointment at a medical school are more likely to be in contact with leading medical experts and may be more up-to-date with the latest advances in research and treatments than community based physicians who are not affiliated with a medical school.

- **Hospital Affiliation** - Find out about the hospitals that the doctor uses. In the event that you need to be treated at a hospital, is the hospital where the physician has admitting privileges nearby to your home or will you (and your family members) have to travel a considerable distance?

- **Hospital Accreditation** - Find out if the hospital where the physician has admitting privileges is accredited by the Joint Commission on Accreditation of Healthcare Organizations (JCAHO). You can find information about a specific hospital's accreditation status by searching the JCAHO web site at http://www.jointcommission.org/. The JCAHO is an independent, not-for-profit organization that evaluates and accredits more than 15,000 health care organizations and programs in the United States. To receive and maintain JCAHO accreditation, a health care organization must undergo an on-site survey by a JCAHO survey team at least every three years and meet specific standards and performance measurements that affect the safety and quality of patient care.

- **Health Insurance Coverage** - Find out if the physician is covered by your health insurance plan. If you belong to a managed care plan (HMO or PPO), you are usually restricted to using specific physicians who also belong to the Plan. If you decide to use a physician who is "outside the network," you will likely have to pay "out of pocket" for the services provided.

6 - Directory of Organizations

American Association of Kidney Patients
3505 E. Frontage Road; Suite 315; Tampa, FL 33607
800.749.2257; 813.636.8100
info@aakp.org
www.aakp.org

American Cancer Society
1599 Clifton Road NE; Atlanta, GA 30329-4251
800.227.2345; 404.486.0100
www.cancer.org

American Institute for Cancer Research; Nutrition Hotline
1759 R St. NW; Washington, DC 20009
800.843.8114; 202.328.7744
www.aicr.org

Association of Cancer Online Resources
www.acor.org

Cancer Care
275 Seventh Avenue; New York, NY 10001
800.813.4673
info@cancercare.org
www.cancercare.org

Cancer Caring Center
4117 Liberty Avenue; Pittsburgh, PA 15224
412.622.1212
info@cancercaring.org
www.cancercaring.org

Cancer Hope Network
2 North Road; Chester, NJ 07930
877.467.3638
info@cancerhopenetwork.org
www.cancerhopenetwork.org

Cancer Information Service; National Cancer Institute
6116 Executive Boulevard; Room 3036A; Bethesda, MD 20892
800.422.6237 800.332.8615 (TTY)
www.cancer.gov

CancerHelp (UK)
0808 800 40 40
www.cancerhelp.org.uk

Cleveland Clinic Taussig Cancer Center
9500 Euclid Avenue; Cleveland, OH 44195
800.862.7798 800.223.2273
www.clevelandclinic.org/cancer

Dana-Farber Cancer Institute
44 Binney Street; Boston, MA 02115
866.408.3324; 617.632.5330 (TDD)
www.dana-farber.org

Duke University Medical Center
Erwin Road Durham, NC 27710
(919) 684-8111
www.mc.duke.edu

European Organization for Research and Treatment of Cancer
Avenue E Mounier 83, boite 11; B-1200, Brussels; BELGIUM
+32 2-774-1611
www.eortc.be

Fox Chase Cancer Center
333 Cottman Avenue; Philadelphia, PA 19111
888.369.2427; 215.728.6900
www.fccc.edu

H. Lee Moffitt Cancer Center and Research Institute
12902 Magnolia Drive Tampa, FL 33612
(813) 972-4673
www.moffitt.usf.edu

Hospital of the University of Pennsylvania
3400 Spruce Street Philadelphia, PA 19104
(215) 662-4000
www.pennhealth.com

Johns Hopkins Hospital
600 North Wolfe Street Baltimore, MD 21287
(410) 955-5000
www.hopkinsmedicine.org

Kidney and Urology Foundation of America
152 Madison Ave, Suite 201 New York, NY 10016
800.633.6628; 212.629.9770
info@kidneyurology.org
www.kidneyurology.org

Kidney Cancer Association
1234 Sherman Avenue; Evanston, IL 60202
800.850.9132
kidney.cancer@live.com
www.kidneycancer.org

Look Good...Feel Better; American Cancer Society
1599 Clifton Road, NE; Atlanta, GA 30329
800.395.5665
www.lookgoodfeelbetter.org

M.D. Anderson Cancer Center
1515 Holcombe Blvd.; Houston, TX 77030
800.392.1611 713.792.3245; 713.792.6161 (fax)
www.mdanderson.org

Macmillan Cancer Support; Cancer Backup
89 Albert Embankment London SE1 7UQ UK
020 7840 7840
www.macmillan.org.uk

Massachusetts General Hospital
55 Fruit Street Boston, MA 02114
(617) 726-2000
www.massgeneral.org

Mayo Clinic Cancer Center
1216 Second Street SW Rochester, MN 55902
(507) 255-5123
www.mayoclinic.org

Memorial Sloan-Kettering Cancer Center
1275 New York Avenue; New York, NY 10021
800.525.2225 212.639.2000
www.mskcc.org

National Kidney and Urologic Diseases Information; Clearinghouse
3 Information Way; Bethesda, MD 20892-3580
800.891.5390; 301.654.4415
nkudic@info.niddk.nih.gov
www.kidney.niddk.nih.gov

Ohio State University James Cancer Hospital
370 West 9th Avenue Columbus, OH 43210
(614) 293-8000
www.osumedcenter.edu

People Living with Cancer; American Society of Clinical Oncology
2318 Mill Road, Suite 800, Alexandria, VA 22314
571-483-1780; 888-651-3038
www.cancer.net

Ronald Reagan UCLA Medical Center
10833 Le Conte Avenue Los Angeles, CA 90095
(310) 825-9111
www.uclahealth.org

Stanford Hospital and Clinics
300 Pasteur Drive Palo Alto, CA 94304
(650) 723-4000
www.stanfordhospital.com/

The Cancer Project; Cancer and Nutrition
5100 Wisconsin Avenue Suite 400 Washington, DC 20016
202.244.5038
info@cancerproject.org
www.cancerproject.org

The Wellness Community
919 18th Street NW; Suite 54; Washington, DC 20006
888.793.9355 202.659.9709; 202.659.9301 (fax)
help@thewellnesscommunity.org
www.thewellnesscommunity.org

University of Alabama Hospital at Birmingham
619 South 19th Street Birmingham, AL 35233
(205) 934-4011
www.health.uab.edu

University of California, San Francisco Medical Center
500 Parnassus Avenue San Francisco, CA 94143
(415) 476-1000
www.ucsfhealth.org

University of Chicago Hospitals; Cancer Research Center
5841 South Maryland Avenue; Chicago, IL 60637
877.824.0660 773.702.1000
www.uchospitals.edu/specialties/cancer

University of Michigan Hospitals and Health Centers
1500 East Medical Center Drive Ann Arbor, MI 48109
(734) 936-4000
www.med.umich.edu

University of Washington Medical Center
1959 NE Pacific St, Box 356151 Seattle, WA 98195
(206) 598-3300
www.uwmedicine.org/Facilities/UWMedicalCenter/

Vanderbilt University Medical Center
1211 22nd Avenue South Nashville, TN 37232

(615) 322-5000
www.mc.vanderbilt.edu

Women's Cancer Resource Center

5741 Telegraph Avenue; Oakland, CA 94609
888.421.7900; 510.420.7900
wcrc@wcrc.org
www.wcrc.org

Complementary and Alternative Medicine Resources

American Academy of Medical Acupuncture
170 East Grand Avenue Suite 330 El Segundo, CA 90245 Phone: 310.364.0193
administrato@medicalacupuncture.org
http://www.medicalacupuncture.org

American Association for Acupuncture and Oriental Medicine
1925 West County Road B2
Roseville, MN 55113
Phone: 651.631.0216
http://www.aaaom.edu

American Association of Naturopathic Physicians
4435 Wisconsin Avenue
Suite 403 Washington, DC 20016
Phone (Toll free): 866.538.2267
Phone: 202.237.8150
http://www.naturopathic.org

American Chiropractic Association
1701 Clarendon Blvd.
Arlington, VA 22209
Phone: 703.276.8800 memberinfo@acatoday.org http://www.amerchiro.org

American Holistic Medical Association
23366 Commerce Park Suite 101B Beachwood, OH 44122 Phone: 216.292.6644
info@holisticmedicine.org http://www.holisticmedicine.org

American Massage Therapy Association
500 Davis Street, Suite 900
Evanston, IL 60201-4695
Phone (Toll-Free): 877.905.2700
Phone: 847.864.0123 info@amtamassage.org http://www.amtamassage.org

National Center for Complementary and Alternative Medicine (NCCAM) Clearinghouse
9000 Rockville Pike Bethesda, MD 20892 Phone: 888.644.6226 info@nccam.nih.gov
http://nccam.nih.gov

National Center for Homeopathy
801 North Fairfax Street, Suite 306
Alexandria, VA 22314
Phone: 703.548.7790
http://www.homeopathic.org

Office of Dietary Supplements, National Institutes of Health

6100 Executive Boulevard
Room 3B01, MSC 7517
Bethesda, MD 20892-7517
Phone: 301.435.2920 ods@nih.gov http://ods.od.nih.gov

Rosenthal Center for Complementary and Alternative Medicine

Columbia Presbyterian Hospital
630 West 168th Street
Box 75
New York, NY 10032
Phone: 212.342.0101
http://rosenthal.hs.columbia.edu