

1: Colorectal Cancer Management and Treatment | Cleveland Clinic

Winawer SJ, Fletcher RH, Miller L, Godlee F, Stolar MH, Mulrow CD, Woolf SH, Glick SN, Ganiats TG, Bond JH, et al. Colorectal cancer screening: clinical guidelines.

Treatment for colon cancer is based largely on the stage extent of the cancer, but other factors can also be important. People with colon cancers that have not spread to distant sites usually have surgery as the main or first treatment. Chemotherapy may also be used after surgery called adjuvant treatment. Most adjuvant treatment is given for about 6 months.

Treating stage 0 colon cancer Since stage 0 colon cancers have not grown beyond the inner lining of the colon, surgery to take out the cancer is often the only treatment needed. In most cases this can be done by removing the polyp or taking out the area with cancer through a colonoscope local excision. Removing part of the colon partial colectomy may be needed if a tumor is too big to be removed by local excision.

Treating stage I colon cancer Stage I colon cancers have grown deeper into the layers of the colon wall, but they have not spread outside the colon wall itself or into the nearby lymph nodes. Stage I includes cancers that were part of a polyp. If the polyp is removed completely during colonoscopy, with no cancer cells at the edges margins of the removed piece, no other treatment may be needed. If the cancer in the polyp is high grade see Colorectal Cancer Stages for more on this , or there are cancer cells at the edges of the polyp, more surgery might be recommended.

Treating stage II colon cancer Many stage II colon cancers have grown through the wall of the colon, and maybe into nearby tissue, but they have not spread to the lymph nodes. Surgery to remove the section of the colon containing the cancer partial colectomy along with nearby lymph nodes may be the only treatment needed. But your doctor may recommend adjuvant chemotherapy chemo after surgery if your cancer has a higher risk of coming back recurring because of certain factors, such as: The cancer looks very abnormal is high grade when viewed under a microscope. The cancer has grown into nearby blood or lymph vessels. The surgeon did not remove at least 12 lymph nodes. Cancer was found in or near the margin edge of the removed tissue, meaning that some cancer may have been left behind. The cancer had blocked off obstructed the colon. The cancer caused a perforation hole in the wall of the colon. Not all doctors agree on when chemo should be used for stage II colon cancers. If chemo is used, the main options include 5-FU and leucovorin, oxaliplatin, or capecitabine, but other combinations may also be used.

Treating stage III colon cancer Stage III colon cancers have spread to nearby lymph nodes , but they have not yet spread to other parts of the body. Surgery to remove the section of the colon with the cancer partial colectomy along with nearby lymph nodes, followed by adjuvant chemo is the standard treatment for this stage. For chemo, either the FOLFOX 5-FU, leucovorin, and oxaliplatin or CapeOx capecitabine and oxaliplatin regimens are used most often, but some patients may get 5-FU with leucovorin or capecitabine alone based on their age and health needs.

Treating stage IV colon cancer Stage IV colon cancers have spread from the colon to distant organs and tissues. Colon cancer most often spreads to the liver, but it can also spread to other places like the lungs, brain, peritoneum the lining of the abdominal cavity , or to distant lymph nodes. In most cases surgery is unlikely to cure these cancers. But if there are only a few small areas of cancer spread metastases in the liver or lungs and they can be removed along with the colon cancer, surgery may help you live longer. This would mean having surgery to remove the section of the colon containing the cancer along with nearby lymph nodes, plus surgery to remove the areas of cancer spread. In some cases, hepatic artery infusion may be used if the cancer has spread to the liver. Then, if the tumors shrink, surgery to remove them may be tried. Chemo would then be given again after surgery. For tumors in the liver, another option may be to destroy them with ablation or embolization. If the cancer has spread too much to try to cure it with surgery, chemo is the main treatment. Surgery might still be needed if the cancer is blocking the colon or is likely to do so. Sometimes, such surgery can be avoided by putting a stent a hollow metal or plastic tube into the colon during a colonoscopy to keep it open. Otherwise, operations such as a colectomy or diverting colostomy cutting the colon above the level of the cancer and attaching the end to an opening in the skin on the belly to allow waste out may be used. Some of the most commonly used regimens include: If one of these regimens is no longer working, another may be tried. For people with certain gene changes in their cancer

cells, another option after initial chemotherapy might be treatment with an immunotherapy drug such as pembrolizumab Keytruda. For advanced cancers, radiation therapy can also be used to help prevent or relieve symptoms such as pain. Treating recurrent colon cancer Recurrent cancer means that the cancer has come back after treatment. The recurrence may be local near the area of the initial tumor , or it may be in distant organs. Local recurrence If the cancer comes back locally, surgery often followed by chemo can sometimes help you live longer and may even cure you. If it shrinks the tumor enough, surgery might be an option. This would again be followed by more chemo. Surgery might be an option for some people. If not, chemo may be tried to shrink the tumor s , which may then be followed by surgery to remove them. Ablation or embolization techniques might also be an option to treat some liver tumors. Possible regimens are the same as for stage IV disease. For people whose cancers are found to have certain traits on lab tests, another option might be treatment with immunotherapy. Your options depend on which, if any, drugs you had before the cancer came back and how long ago you got them, as well as your overall health. You may still need surgery at some point to relieve or prevent blockage of the colon or other local problems. Radiation therapy may be an option to relieve symptoms as well. Recurrent cancers can often be hard to treat, so you might also want to ask your doctor if clinical trials of newer treatments are available. The treatment information given here is not official policy of the American Cancer Society and is not intended as medical advice to replace the expertise and judgment of your cancer care team. It is intended to help you and your family make informed decisions, together with your doctor. Your doctor may have reasons for suggesting a treatment plan different from these general treatment options.

2: What Is Colorectal Cancer?

The medical management of colorectal cancer (CRC) continues to represent an enormous challenge globally. In the Western world, CRC remains the second leading cause of cancer-related death, [1] while in the United States, CRC represents the third leading cause of cancer and cancer-related deaths.

Your preferences after you learn about different procedures Some of the procedures commonly used to treat rectal cancer are: Abdominoperineal resection with end colostomy Abdominoperineal resection APR offers the best chance of cure for rectal tumors located extremely close to the anal sphincter. With cancer in this location, the surgeon has to remove both the tumor and the sphincter. After APR, it is no longer possible to pass stool through the anus. An end colostomy connects the end of the colon that was attached to the rectum before APR to a surgical opening stoma in the lower abdomen. Stool then passes into a removable pouch placed over the stoma. Coloanal anastomosis This sphincter-sparing procedure may be an option for rectal cancer surgery if the tumor is at least. The surgeon removes the entire rectum and enough of the surrounding tissue to achieve clear margins. Then the remaining end of the colon may be shaped into a pouch that is connected to the colon. Alternatively, the end of the colon may be connected directly to the anus. Low anterior resection This procedure, which also leaves the anus intact, may be performed when the tumor is located in the upper part of the rectum. The surgeon removes the tumor and a margin of healthy tissue around it, leaving the lower part of the rectum. The end of the colon is then attached to the remaining section of the rectum. Local excision Local excision takes out the rectal tumor, along with a margin of healthy tissue and the section of rectal wall beneath the tumor. This technique is generally reserved for early, small stage 1 rectal cancers, after a biopsy shows that the tumor is unlikely to spread or recur. Unlike the other procedures listed, local excision does not include lymph-node removal. If any of these features are present, a standard operation may be necessary. Chemotherapy is also needed before or after surgery. Intraoperative radiation therapy IORT. A radiation oncologist administers IORT during rectal cancer surgery, after the surgical team has resected the primary tumor. The treatment consists of a single, high dose of radiation focused directly on the original tumor site before the abdomen is closed. The tight focus of the radiation beam, along with careful placement of radiation shields, protects nearby organs from radiation damage. The main role of the treatment is to reduce the chance of cancer recurrence when the surgeon is unable to remove the optimal amount of healthy tissue around the tumor. IORT is used to treat advanced rectal cancer, as well as some cases of recurrent rectal cancer. During minimally invasive laparoscopic rectal cancer surgery, several small incisions are made in your abdomen. Special tools and a camera are inserted through the incisions and allow the surgeon to remove the rectal cancer without making one large incision. Colorectal surgeons at Mayo Clinic were among the earliest adopters of laparoscopic procedures for cancers of the rectum and colon. Today, volumes of laparoscopic procedures for colon and rectal cancer at Mayo Clinic are among the highest in the world. During robotic surgery, the surgeon sits at a console and uses controls to guide high-tech surgical tools. Robotic surgery has the advantage of allowing the surgeon to work more easily in small spaces and gives the surgeon an enhanced view of the area where the operation is taking place. At Mayo Clinic, the use of robotics has produced excellent outcomes in surgery for complex colorectal tumors involving multiple organs and structures in the pelvis. Combination therapy Standard treatment for stage II and stage III rectal cancers is typically a combination of chemotherapy and radiation chemoradiotherapy given before surgery preoperatively. This approach is also an option for treating some stage I rectal cancers that have a high risk of recurring. Benefits of preoperative chemoradiotherapy include: After surgery, most people also have additional chemotherapy to destroy any remaining cancer cells. Proton beam therapy One of the newest radiation therapies available at Mayo Clinic in the Minnesota and Arizona locations, proton beam therapy can benefit children, young adults, and those with cancers located close to critical organs and body structures. By definition, though, stage IV rectal cancer has spread metastasized to a different part of the body, usually the liver. In some cases, a metastatic tumor may appear in the liver when the primary tumor is still confined mainly to the rectum and nearby lymph nodes. If this happens, your doctor may recommend surgery to remove both the primary tumor

and the liver tumor at once. In other cases, the primary tumor may have spread to organs near the rectum, such as the uterus and ovaries, before liver metastasis appears. Complex surgery and reconstruction of pelvic structures may be possible in these cases as well. Drugs for stage IV rectal cancer Chemotherapy may extend life for people with stage IV rectal cancer, as may radiation therapy in some cases. Either treatment may be given after surgery, while chemotherapy is more commonly used before surgery. Chemotherapy or radiation may be used to relieve symptoms in cases where the cancer is too extensive for surgery. People with stage IV rectal cancer may receive one of three newer FDA-approved drugs in addition to cancer chemotherapy. These drugs, called biologics, target cancer-cell traits that allow tumors to grow. The addition of a biologic drug to standard chemotherapy has been found to improve response to treatment in certain cases of colorectal cancer. Therapy that includes biologics is called targeted therapy. The FDA-approved biologics used with chemotherapy in first line treatment of stage 4 colorectal cancer are: Bevacizumab Avastin Panitumumab Vectibix Supportive palliative care Palliative care is focused on providing relief from pain and other symptoms of a serious illness. Palliative care specialists work with you, your family and your other doctors to provide an extra layer of support that complements your ongoing care. An example of palliative care might be surgery to relieve a blockage of the rectum in order to improve your symptoms. Palliative care is provided by a team of doctors, nurses and other specially trained professionals. Palliative care teams aim to improve the quality of life for people with cancer and their families. This form of care is offered alongside curative or other treatments you may be receiving. Request an Appointment at Mayo Clinic Clinical trials Explore Mayo Clinic studies testing new treatments, interventions and tests as a means to prevent, detect, treat or manage this disease. A doctor who treats digestive diseases gastroenterologist A doctor who treats cancer oncologist A surgeon specializing in procedures involving the colon and rectum colorectal surgeon A doctor who uses radiation to treat cancer radiation oncologist Here are some things you can do before you meet with these doctors: Make a list of all your medications, including vitamins or supplements. Consider taking a family member or friend along to take notes on what your doctors say, so that you can concentrate on listening. Write down questions to ask your doctor. For rectal cancer, here are some questions you may want to ask: In what part of the rectum is my cancer located? What is the stage of my rectal cancer? Has my rectal cancer spread to other parts of my body? Will I need more tests? What are the treatment options? How much does each treatment increase my chances of a cure? What are the potential side effects of each treatment? How will each treatment affect my daily life? Is there one treatment you feel is best for me? What would you recommend to a family member or friend in my same situation? How much time can I take to make my decision about treatment? Should I seek a second opinion? Are there any brochures or other printed material that I can take with me? What websites do you recommend? Mayo Clinic in Rochester, Minn. Mayo Clinic in Scottsdale, Ariz.

3: Colorectal cancer - Cancer Council Australia

Chemotherapy rather than surgery has been the standard management for patients with metastatic colorectal cancer. Biologic agents have assumed a major role in the treatment of metastatic cases, with selection increasingly guided by genetic analysis of the tumor.

It remains to be seen whether this classification will stand the test of time. Until now, it has been unclear whether those molecular subtypes, with the exception of MSI-H tumors, are associated with treatment outcomes in CRC. Prognosis after surgery is dependent on the circumferential resection margin, emphasizing the importance of the surgical quality on outcome [19]. Preoperative magnetic resonance imaging scans to estimate the involvement of the rectum wall and local lymph node metastases are standard in most centers. After surgical removal of pT1 low-risk tumors, no adjuvant chemotherapy is recommended [20]. In case of a higher postoperative T stage, an additional total mesorectal excision TME should be performed. To reduce the possibility of local recurrence in locally advanced rectum cancers T, N, and M0 , neoadjuvant radio-chemotherapy using a fluoropyrimidine followed by TME and adjuvant chemotherapy is considered standard [21]. In this setting, capecitabine has shown superior survival rates when compared with infusional 5-fluorouracil 5-FU in one trial [22], but no difference could be detected in the NSAPB-R04 trial [23], so infusional and oral 5-FU administrations are being used interchangeably. For neoadjuvant radiation, a dose of 45 Gy in 5 fractions is preferred. As higher single-dose radiation is known to affect long-term functionality, the longer protocol should be preferred. Preoperative therapy with The primary endpoint of the study, overall survival OS , was not met. The frequency of distant metastases was comparable in the two treatment arms. In one study, the addition of oxaliplatin to this infusional 5-FU treatment resulted in a significantly higher rate of pathological response [27] and a significantly longer 3-year disease-free survival DFS [28]. However, the recently presented PETACC study tested oxaliplatin in combination with capecitabine and radiotherapy in the same setting and failed to demonstrate a better outcome for the oxaliplatin-treated cohort [29]. Therefore, the addition of oxaliplatin to the neoadjuvant radio-chemotherapy cannot be recommended. To summarize, in locally advanced rectal cancer, capecitabine during radio-chemotherapy is superior to bolus 5-FU [22] as a combination partner for radiotherapy. Within this concept, the addition of oxaliplatin to capecitabine was not shown to be of superior outcome [29]. In high-risk patients with positive lymph nodes and no major patho-histological response after neoadjuvant treatment, the addition of oxaliplatin to 5-FU in the adjuvant treatment might be considered [32]. In larger T4 tumors, a gynecological and urological examination should be performed to exclude other organ involvement before treatment is started. A simplified workflow of the treatment of local or locally advanced rectal cancer is presented in Figure 1.

4: Colorectal (Colon) Cancer | CDC

People with an average risk of colon cancer can consider screening beginning at age 50. But people with an increased risk, such as those with a family history of colon cancer, should consider screening sooner. African-Americans and American Indians may consider beginning colon cancer screening at age 45.

The basic surgical principles are removal of the major vascular pedicle feeding the tumor along with its lymphatics, obtaining a tumor-free margin, and en bloc resection of any organs or structures attached to the tumor. True colonic mucosal recurrences are rare. More common are para-anastomotic recurrences reflecting possibly an inadequate lymphadenectomy. In colon cancer, it is recommended that at least a 5 cm margin of normal bowel be obtained on either side of the tumor in order to minimize the possibility of a local recurrence. For right-sided tumors, the length of ileum apparently does not influence the local recurrence rate. Curative resections in rectal cancer may require a permanent colostomy. As technology has advanced, so have the efforts to preserve sphincter function without compromising cure. A distal surgical margin of at least 2 cm in the fresh specimen is desired in rectal cancer resections. Rarely, rectal adenocarcinomas will have distal submucosal spread. In patients with distal rectal adenocarcinomas at least a 1 cm margin of resection is desirable. Some authors have reported margins less than 1 cm in patients who received neoadjuvant chemoradiation and underwent sphincter saving procedures without compromising either recurrence or disease-free survival. Adequate lymph node resection is imperative for staging and selection of patients for adjuvant treatment. In colon cancer, a minimum of 12 negative lymph nodes should be examined to confirm node-negative disease. In rectal cancer, there is no evidence that high ligation of the inferior mesenteric artery offers any benefit over ligation at the level of the origin of the superior rectal artery. Even though it has been recommended that a minimum of 4 lymph nodes be examined for entry into adjuvant rectal trials, Tepper and colleagues reported that 14 lymph nodes need to be sampled to accurately define nodal status in rectal cancer accurately. Four cm of attached distal mesorectum should be obtained with the resected specimen. Routine extended lateral pelvic node dissection is not recommended in rectal cancer surgery. If clinically indicated, an attempt to remove these lymph nodes at the time of surgery is warranted. Sentinel lymph node mapping has changed the management of melanoma and breast cancer. At this time it appears not to have a major effect in altering therapy in colorectal cancer. By identifying the sentinel lymph nodes, immunohistochemical and molecular techniques can be utilized to evaluate for the presence of micrometastases otherwise not diagnosed by conventional pathology. Not all studies have been encouraging. The authors concluded that sentinel node examination with multilevel sectioning is unlikely to improve risk stratification for resectable colon cancer. Sentinel lymph node for rectal cancer is more tedious and has not been as extensively evaluated as in colon cancer. The significance of lymph node micrometastases in colorectal carcinoma is not known. Similar to reports of micrometastases in the bone marrow of patients with colorectal carcinoma undergoing curative resection, a report from the Netherlands suggested that lymphatic micrometastases adversely affected prognosis. Prospective studies are needed to clarify the significance of molecular detection of lymphatic micrometastases. The procedure consists of mobilization of the colon laparoscopically and performing an extracorporeal anastomosis. In some situations, especially in the low sigmoid colon, an intracorporeal anastomosis can be performed. In rectal cancer the technique is utilized to mobilize the mesorectum. The main potential benefits from laparoscopic colectomy have been earlier postoperative recovery and less narcotic use. The Clinical Outcomes of Surgical Therapy Study Group COST conducted a multi-institutional prospective randomized trial comparing laparoscopic-assisted colectomy with open colectomy for colorectal cancer in the United States. After 3 years of follow-up, there were no differences in recurrence rates, wound recurrence rates, survival, or complication rates. In that trial, patients undergoing laparoscopically assisted colectomy had a shorter median hospital stay and briefer use of parenteral narcotics and oral analgesics than those undergoing open colectomy. Laparoscopic rectal cancer surgery is being performed, but it has not been evaluated and reported in randomized controlled trials. The treatment in these patients has to be individualized. Favorable histopathological characteristics are free margins of resection, well- or moderately well-differentiated

adenocarcinoma, and no lymphatic or vascular invasion. In addition, the endoscopist has to be confident that the lesion was completely removed. There are patients who will not tolerate the risk of having lymph node metastases, and therefore will choose surgical resection. In patients who choose endoscopic follow-up, colonoscopy should be performed 3 months after endoscopic polypectomy to evaluate the area of excision. If the colonoscopy is normal, then colonoscopy follow-up is repeated in 1 year and, if normal, in 3 years time. Polyps where the cancer has invaded into the muscularis propria should not be treated by endoscopic excision unless surgery resection is contraindicated. These therapies include electrofulguration, endocavitary radiation with or without brachytherapy, and local excision with or without external beam radiation or chemoradiation. Of these techniques, local excision has the advantage of providing a specimen for pathological evaluation. Surgical approaches to local excision include transanal, transsacral, or transsphincteric approaches. The latter two procedures are less commonly performed than transanal procedure. Full thickness transanal local excision has been used for selected small 4cm rectal tumors. Patients are staged clinically with history and physical exam, CAT scan of the abdomen and pelvis, and transrectal ultrasound. Patients with clinically enlarged lymph nodes or fixed tumors are not considered good candidates for local excision. After full thickness excision, the histopathology is examined. Because of the low overall risk of recurrence, postoperative chemoradiation is not usually recommended. Patients who have poorly differentiated T1 tumors or T2 tumors with any differentiation have routinely been treated with postoperative chemoradiation in order to reduce the risk of pelvic recurrence. Initial reports with short follow-up were very encouraging and stimulated a significant amount of enthusiasm. There were 4 failures 2 local only, 1 distant only, and 1 local and distant in 59 T1 patients. In 51 T2 patients there were 10 recurrences 5 local only, 2 local and distant, and 3 distant only. These investigators subsequently published their results of salvage radical surgery in 29 patients after failed local excision. Twenty-three of 29 patients had surgery with curative intent. Local excision has been used after preoperative chemo radiation in medically inoperable patients and patients who refuse abdominal perineal resection and in those patients whose tumors have had a complete or near complete clinical response after neoadjuvant chemoradiation has been reported. However, the follow-up in the latter studies is short, and there have been reports of lymph node metastases in specimens of pathologically T0 tumors after neoadjuvant chemoradiation. Another approach has been observation in patients who achieve clinical complete response to chemoradiation. There has been a single report of high local control and survival in such patients without surgery. These results require further validation. Local excision or observation after clinical complete response after neoadjuvant therapy is investigational and should be performed only in the context of a clinical trial. Endocavitary radiation contact therapy is a technique that administers very high doses of radiation that is concentrated in the tumor with minimal radiation dose to surrounding tissues. This treatment is appropriate for medically inoperable patients, or patients who refuse surgery, or early small rectal tumors. Proc Am Soc Clin Oncol ; Oral capecitabine vs intravenous 5-fluorouracil and leucovorin: Br J Cancer ; Relationship of acute gastrointestinal toxicity and the volume of irradiated small bowel in patients receiving combined modality therapy for rectal cancer. J Clin Oncol ; Preoperative chemoradiation for extraperitoneal T3 rectal cancer: A clinical trial to evaluate the worth of preoperative multimodality therapy in patients with operable carcinoma of the rectum: Dis Colon Rectum ; Response to preoperative chemoradiation increases the use of sphincter-preserving surgery in patients with locally advanced low rectal carcinoma. Preoperative versus postoperative chemoradiotherapy for rectal cancer. N Engl J Med ; Pahlman L, Glimelius B. Pre- or postoperative radiotherapy in rectal and rectosigmoid carcinoma. Report from a randomized multicenter trial. Locally advanced rectal cancer: Swedish Rectal Cancer Trial. Improved survival with preoperative radiotherapy in resectable rectal cancer. The Stockholm I trial of preoperative short term radiotherapy in operable rectal carcinoma. A prospective randomized trial. Stockholm Colorectal Cancer Study Group. Postoperative mortality in rectal cancer treated with or without preoperative radiotherapy: Br J Surg ; Preoperative radiotherapy for resectable rectal cancer: Rapid growth of microscopic rectal cancer as a determinant of response to preoperative radiation therapy. Preoperative radiotherapy in rectal carcinoma aspects of acute adverse effects and radiation technique. Total mesorectal excision TME with or without preoperative radiotherapy in the treatment of primary rectal cancer. Prospective randomised trial with

standard operative and histopathological techniques. Dutch ColoRectal Cancer Group. Eur J Surg ; Preoperative radiation Preop RT in rectal cancer: J Clin Oncol ;23 Suppl Effective surgical adjuvant therapy for high-risk rectal carcinoma. Survival after postoperative combination treatment of rectal cancer. Prolongation of the disease-free interval in surgically treated rectal carcinoma.

5: Rectal cancer - Diagnosis and treatment - Mayo Clinic

monson et al: PRaCtiCe PaRameteRs foR the manaGement of ReCtal CanCeR (ReViseD) longer distinctly identified, the sacral promontory is generally recognized as the transition point from a radiographic.

Colorectal cancer is treated based on the stage of cancer. Staging identifies the severity of the cancer. Treatment options can include the use of surgery, chemotherapy and radiation. What are the stages of colorectal cancer? Colorectal cancer is described clinically by the stages at which it is discovered. The various stages of a colorectal cancer are determined by the depth of invasion through the wall of the intestine; the involvement of the lymph nodes the drainage nodules ; and the spread to other organs metastases. Listed below is a description of the stages of colorectal cancer and the treatment for each stage. In most cases, treatment requires surgical removal resection of the affected part of the intestine. For some tumors, chemotherapy or " for rectal cancers " radiation are added to manage the disease. For lesions that are stage 0 " also known as carcinoma in situ " the disease remains within the lining of the colon or rectum. Lesions are in the pre-cancerous stage and are not cancers. Therefore, removal of the lesion, either by polypectomy via colonoscopy or by surgery if the lesion is too large, may be all that is required for treatment. Stage I colorectal cancers have grown into the wall of the intestine but have not spread beyond its muscular coat or into close lymph nodes. The standard treatment of a stage I colon cancer is usually a colon resection alone, in which the affected part of the colon and its lymph nodes are removed. The type of surgery used to treat a rectal cancer is dependent upon its location, but includes a low anterior resection or an abdominoperineal resection. Stage II is divided into three smaller stages. In the first stage, IIA, the cancer has spread through the wall of the colon. In stage IIB, colorectal cancer has penetrated beyond the muscular layers of the large intestine. By stage IIC the cancer has even spread into adjacent tissue. However, in all stage II lesions, the cancer has not yet reached the lymph nodes. Usually the only treatment for this stage of colon cancer is a surgical resection removal , although chemotherapy after surgery may be added. A stage III colorectal cancer is considered an advanced stage of cancer as the disease has spread to the lymph nodes. Once again, there are three smaller stages of stage III colorectal cancer. Stage IIIA is characterized by cancer that has moved beyond the colon wall and spread to one to three lymph nodes or a very early lesion in the colon wall that has spread to four to six lymph nodes. In the second stage, IIIB, more lymph nodes are affected or there is a more advanced lesion in the colon wall with one to three lymph nodes affected. The cancer also impacts the organs in the abdomen in this stage. In stage IIIC, the cancer continues to spread to nearby lymph nodes and impacts more adjacent tissue of organs in the abdomen. For a colon cancer, surgery is usually done first, followed by chemotherapy. Chemotherapy and radiation may precede or follow surgery for a stage III rectal cancer. For patients with stage IV colorectal cancer, the disease has spread metastasized to distant organs such as the liver, lungs or ovaries. This stage is also divided into three stages. Stage IVA is characterized by cancer that has spread to an organ and lymph nodes that are farther from the colon. In stage IVB the cancer has moved to more than one distant organ and more lymph nodes. Stage IVC cancer has impacted not only the distant organs and lymph nodes, but also the tissue of the abdomen. When the cancer has reached this stage, surgery is generally used for relieving or preventing complications as opposed to curing the patient of the disease. In the case of minimal disease in the liver, the tumor may be treated with radiofrequency ablation destruction with heat , cryotherapy destruction by freezing , or intra-arterial chemotherapy. For stage IV cancer that cannot be surgically removed, chemotherapy, radiation therapy, or both may be used to relieve, delay, or prevent symptoms. Chemotherapy refers to drugs that kill cancer cells. Chemotherapy drugs can be given intravenously into a vein via an injection or a pump, or orally by mouth as a pill. Each drug works against a specific cancer and is delivered in specific doses and schedules. Chemotherapy may be recommended for advanced colorectal cancers, in which the cancer cells have spread to the lymph nodes drainage nodules or to other organs. Chemotherapy is used in the following ways: Primary chemotherapy is used when the colorectal cancer has already metastasized spread to other organs, like the liver or lungs. In this situation, since surgery usually cannot eliminate the cancer, chemotherapy can possibly shrink

the tumor nodules, relieve symptoms and prolong life. Neo-adjuvant chemotherapy is given before surgery for certain rectal cancers in order to shrink the tumor and allow the surgeon to better remove it. In this situation, the patient usually receives radiation along with the chemotherapy. When appropriate, adjuvant chemotherapy is given after the colorectal cancer is removed with surgery. The surgery may not eliminate all of the cancer cells, and some may remain in the lymph nodes or other organs. The adjuvant chemotherapy is used to kill any of these remaining cancer cells. Your doctor will talk with you about the best treatment for your condition.

What chemotherapy agents are used to treat colorectal cancer? Immunotherapy is a newer type of treatment for colorectal cancer. There are two types of immunotherapy: A vaccine is an example of an active immunotherapy. Active immunotherapy and vaccines against colorectal cancer are still under investigation.

Are there any newer treatments for colorectal cancer? Monoclonal antibodies are created in a lab to find and destroy a particular target – in this case, colorectal cancer cells. Because of their precision, the idea is that treating a tumor with a monoclonal antibody will be more specific than chemotherapy drugs, and therefore have fewer side effects. Some monoclonal antibody medications prevent tumors from growing the blood vessels needed for their survival, such as vascular endothelial growth factor VEGF , a substance released by tumors to stimulate the growth of new blood vessels. Interfering with the blood supply to a tumor might slow its growth. Others slow cancer growth by targeting the epidermal growth factor receptor EGFR , a protein found on the surface of about 60 to 80 percent of colon cancer cells. They are often used along with or after other chemotherapy agents for metastatic colorectal cancer that does not respond to other treatments.

What are the side effects of chemotherapy and immunotherapies? Traditional chemotherapy The side effects of traditional chemotherapy depend upon the drug, its dosage, how long the treatment lasts and the patient. Because traditional chemotherapy drugs target rapidly dividing cancer cells, they also kill other rapidly dividing healthy cells in the lining of the mouth and the gastrointestinal tract , the hair follicles, and the bone marrow. The side effects of chemotherapy come from damage to these normal cells. Although hair loss is not common to most chemotherapy treatments for colorectal cancer, some people may experience hair thinning. The side effects of traditional chemotherapy can include:

6: Colorectal cancer: diagnosis and management | Guidance and guidelines | NICE

It aims to improve quality of life and survival for adults with colorectal cancer through early diagnosis and staging, management of local disease according to risk of recurrence (high, moderate, low) and management of secondary tumours (metastatic disease).

Diagnosis Screening for colon cancer Doctors recommend certain screening tests for healthy people with no signs or symptoms in order to look for early colon cancer. Finding colon cancer at its earliest stage provides the greatest chance for a cure. Screening has been shown to reduce your risk of dying of colon cancer. People with an average risk of colon cancer can consider screening beginning at age 50. But people with an increased risk, such as those with a family history of colon cancer, should consider screening sooner. African-Americans and American Indians may consider beginning colon cancer screening at age 45. Several screening options exist – each with its own benefits and drawbacks. Talk about your options with your doctor, and together you can decide which tests are appropriate for you. If a colonoscopy is used for screening, polyps can be removed during the procedure before they turn into cancer.

Diagnosing colon cancer Colonoscopy Colonoscopy During a colonoscopy, the doctor inserts a colonoscope into your rectum to check for abnormalities in your entire colon. If your signs and symptoms indicate that you could have colon cancer, your doctor may recommend one or more tests and procedures, including:

- Using a scope to examine the inside of your colon. Colonoscopy uses a long, flexible and slender tube attached to a video camera and monitor to view your entire colon and rectum. If any suspicious areas are found, your doctor can pass surgical tools through the tube to take tissue samples biopsies for analysis and remove polyps.
- No blood test can tell you if you have colon cancer. But your doctor may test your blood for clues about your overall health, such as kidney and liver function tests.
- Your doctor may also test your blood for a chemical sometimes produced by colon cancers carcinoembryonic antigen or CEA. Tracked over time, the level of CEA in your blood may help your doctor understand your prognosis and whether your cancer is responding to treatment.

Staging colon cancer Colon cancer stages Colon cancer stages At its earliest stage stage 0, colon cancer is limited to the inner lining of your colon. As colon cancer progresses, it can grow through your colon and extend to nearby structures. The most advanced stage of colon cancer stage IV indicates cancer has spread to other areas of the body, such as the liver or lungs. Staging helps determine what treatments are most appropriate for you. Staging tests may include imaging procedures such as abdominal, pelvic and chest CT scans. In many cases, the stage of your cancer may not be determined until after colon cancer surgery.

The stages of colon cancer are:

- The cancer has spread to distant sites, such as other organs – for instance, to your liver or lung.

Treatment The type of treatment your doctor recommends will depend largely on the stage of your cancer. The three primary treatment options are surgery, chemotherapy and radiation.

Surgery for early-stage colon cancer If your colon cancer is very small, your doctor may recommend a minimally invasive approach to surgery, such as:

- Removing polyps during a colonoscopy. If your cancer is small, localized and completely contained within a polyp and in a very early stage, your doctor may be able to remove it completely during a colonoscopy.
- Removing larger polyps may require also taking a small amount of the lining of the colon or rectum in a procedure called an endoscopic mucosal resection. In this procedure, your surgeon performs the operation through several small incisions in your abdominal wall, inserting instruments with attached cameras that display your colon on a video monitor. The surgeon may also take samples from lymph nodes in the area where the cancer is located.

Surgery for invasive colon cancer If the cancer has grown into or through your colon, your surgeon may recommend:

- During this procedure, the surgeon removes the part of your colon that contains the cancer, along with a margin of normal tissue on either side of the cancer. Your surgeon is often able to reconnect the healthy portions of your colon or rectum. This procedure can commonly be done by a minimally invasive approach laparoscopy.
- Surgery to create a way for waste to leave your body. This involves creating an opening in the wall of your abdomen from a portion of the remaining bowel for the elimination of stool into a bag that fits securely over the opening. Sometimes the ostomy is only temporary, allowing your colon or rectum time to heal after surgery. In some cases, however, the colostomy may be permanent. Nearby lymph nodes are usually

also removed during colon cancer surgery and tested for cancer. Surgery for advanced cancer If your cancer is very advanced or your overall health very poor, your surgeon may recommend an operation to relieve a blockage of your colon or other conditions in order to improve your symptoms. In specific cases where the cancer has spread only to the liver but your overall health is otherwise good, your doctor may recommend surgery to remove the cancerous lesion from your liver. Chemotherapy may be used before or after this type of surgery. This approach provides a chance to be free of cancer over the long term. Chemotherapy Chemotherapy uses drugs to destroy cancer cells. Chemotherapy for colon cancer is usually given after surgery if the cancer has spread to lymph nodes. In this way, chemotherapy may help reduce the risk of cancer recurrence and death from cancer. Sometimes chemotherapy may be used before surgery as well, with the goal of shrinking the cancer before an operation. Chemotherapy before surgery is more common in rectal cancer than in colon cancer. Chemotherapy can also be given to relieve symptoms of colon cancer that has spread to other areas of the body. Radiation therapy Radiation therapy uses powerful energy sources, such as X-rays, to kill cancer cells, to shrink large tumors before an operation so that they can be removed more easily, or to relieve symptoms of colon cancer and rectal cancer. Radiation therapy either alone or combined with chemotherapy is one of the standard treatment options for the initial management of rectal cancer followed by surgery. Targeted drug therapy Drugs that target specific malfunctions that allow cancer cells to grow are available to people with advanced colon cancer, including:

7: Treatment of Colon Cancer, by Stage

Clinical practice guidelines for the prevention, early detection and management of colorectal cancer From Cancer Guidelines Wiki The guideline recommendations were approved by the Chief Executive Officer of the National Health and Medical Research Council (NHMRC) on 27 October under section 14A of the National Health and Medical Research Council Act

Similar to cytogenetics, higher numbers of alterations are associated with poor survival. Chromosome Analysis, Solid Tumor Chromosomal instability as evidenced by loss of heterozygosity, chromosomal rearrangements, or loss of whole chromosomes is associated with prognosis in sporadic colorectal cancer. A high number of chromosomal abnormalities is associated with poor survival. Because of conflicting data on the association of aneuploidy with a poor outcome, the American Society of Clinical Oncology ASCO does not recommend routine testing for ploidy. The relative risk RR of decreased survival was found to be 1. Thus, analysis of all 4 of these genes could be clinically useful. For more information click here. Mutation in any of the 4 genes is associated with resistance to cetuximab and panitumumab Figure 2. The risk of toxicity can be assessed by testing for an additional TA repeat in the promoter region of the gene encoding uridine diphosphate glucuronosyltransferase 1A1 UGT1A1. The presence of an additional TA repeat ie, positive for TA repeat is consistent with reduced UGT1A1 enzyme activity and SN metabolism, leading to increased likelihood of irinotecan toxicity. Consequently, the irinotecan product insert suggests a reduced initial dose for patients homozygous for the TA repeat. If tumor removal is complete, the CEA level should return to normal within about 6 weeks following surgery; persistently elevated levels suggest residual or metastatic disease. ASCO recommends testing every 3 months for at least 3 years following diagnosis of stage II or III disease, providing the patient is a candidate for further surgery or systemic therapy. Rising values should prompt reevaluation and consideration of alternative treatment. Although there is no universally accepted definition of what constitutes a clinically significant change in CEA levels, guidelines have been proposed: Cancer facts and figures Accessed May 02, American Cancer Society Inc; Accessed October 24, Screening and surveillance for the early detection of colorectal cancer and adenomatous polyps, Revised Bethesda guidelines for hereditary nonpolyposis colorectal cancer Lynch syndrome and microsatellite instability. J Natl Cancer Inst. A randomized trial of the impact of new faecal haemoglobin test technologies on population participation in screening for colorectal cancer. Emerging technologies in screening for colorectal cancer: CT colonoscopy, immunochemical fecal occult blood tests, and stool screening using molecular markers. CA Cancer J Clin. Data on file at Quest Diagnostics. Prospective clinical validation of an assay for methylated SEPT9 DNA for colorectal cancer screening in plasma of average risk men and women over the age of 50 [abstract]. Accuracy of revised Bethesda guidelines, microsatellite instability, and immunochemistry for the identification of patients with hereditary nonpolyposis colorectal cancer. Diagnosis and management of hereditary colon cancer. Hematol Oncol Clin N Am. Accessed May 6, Application of molecular diagnostics for the detection of Lynch syndrome. Expert Rev Mol Diagn. Accessed November 5, ASCO update of recommendations for the use of tumor markers in gastrointestinal cancer. P53 abnormalities and outcomes in colorectal cancer: A retrospective consortium analysis. American Society of Clinical Oncology provisional clinical opinion: Does microsatellite instability predict the efficacy of adjuvant chemotherapy in colorectal cancer? A systematic review with meta-analysis. Defective mismatch repair as a predictive marker for lack of efficacy of fluorouracil-based adjuvant therapy in colon cancer. Uridine diphosphate glucuronosyl transferase 1A1 promotor polymorphism predicts the risk of gastrointestinal toxicity and fatigue induced by irinotecan-based chemotherapy. Relevance of different UGT1A1 polymorphisms in irinotecan-induced toxicity: Clinical utility of biochemical markers in colorectal cancer: Sorbye H, Dahl O. Transient CEA increase at start of oxaliplatin combination therapy for metastatic colorectal cancer.

8: Colorectal Cancer - Clinical Features - Management - TeachMeSurgery

GUIDELINE Role of endoscopy in the staging and management of colorectal cancer This is one of a series of statements discussing the use of GI endoscopy in common clinical situations.

9: Surgical Management of Colorectal Cancer | www.enganchecubano.com

Colorectal cancer (CRC) is the second leading cause of cancer death in the United States, with projections of 50, deaths and , newly diagnosed cases in 1 There are several types of CRC: sporadic, familial, and inherited. Sporadic cases are the most common and apparently result from environmental factors, diet, and aging.

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