



# 50 Questions and Answers

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What percentage of all breast cancer cases is related to genetic susceptibility?

- A. 5%
- B. 10%
- C. 25%
- D. 40%

# A

## C. 25%.

Genetic susceptibility to breast cancer accounts for approximately 25% of all breast cancer cases. In familial breast cancer, mutations in the *BRCA1*, *BRCA2*, *CHEK2*, *TP53*, and *PTEN* genes account for approximately 5% to 10% of breast and ovarian cancer cases overall. The prevalence of *BRCA1* or *BRCA2* mutations varies considerably among ethnic groups and geographical areas. In North America, 1 in every 300 to 500 people is estimated to harbor *BRCA* germline mutations.

Roukos DH, Briasoulis E. Individualized preventive and therapeutic management of hereditary breast ovarian cancer syndrome. *Nat Clin Pract Oncol*. 2007;4:578-590.

Available at: <http://www.medscape.com/viewarticle/562985>. Accessed March 18, 2008.



A 68-year-old woman with a history of heavy tobacco use is found to have a solitary lung nodule on chest computed tomography. Pathology from a recent bronchoscopy reveals adenocarcinoma.

**What further staging work-up is necessary for this patient before surgical resection?**

- A. Brain magnetic resonance imaging
- B. Positron emission tomography (PET) scan
- C. Mediastinoscopy
- D. None

# A

## B. Positron emission tomography (PET) scan.

FDG([18F]2-Fluoro-2-deoxy-glucose)-PET for baseline locoregional staging is now part of the standard work-up for non-small cell lung cancer (NSCLC). The true strength of this test for the mediastinum is its negative predictive value (NPV) when FDG uptake in the primary tumor is sufficient and a central tumor or important hilar lymph node disease is absent. Two well-designed, prospective studies confirmed the high NPV (98%) of the mediastinum of patients with resectable NSCLC and that significantly fewer invasive tests (ie, mediastinoscopy) were required in the PET group than in the traditional work-up group.

Dooms C, Vansteenkiste J. Positron emission tomography in nonsmall cell lung cancer. *Curr Opin Pulm Med.* 2007;13:256-260. Available at: <http://www.medscape.com/viewarticle/559705>. Accessed March 18, 2008.



A 55-year-old woman recently completed induction chemotherapy for acute myelogenous leukemia (AML) with evidence of complete remission on bone marrow biopsy. She subsequently was found to have a platelet count of 25,000/microliter with no clinical evidence of bleeding.

**Is a platelet transfusion necessary at this time?**

- A. Yes
- B. No

# A

## B. No.

Bleeding complications occur more frequently as the severity of thrombocytopenia increases, but only after the platelet count crosses a threshold of about  $10$  to  $30 \times 10^3$ . A normal platelet count is not required to support hemostasis. Clinically important spontaneous bleeding does not occur unless the platelet count is very low or other disorders are present. In a study conducted at the National Cancer Institute to assess the risk for bleeding in patients with thrombocytopenia, the investigators were not able to determine a threshold below which platelets should have prophylactic transfusion. However, following this study prophylactic transfusion became common practice for patients with a platelet count below  $20 \times 10^3$ . Several subsequent randomized studies showed that using a platelet count  $< 10 \times 10^3$  as the trigger for prophylactic transfusion did not increase the risk for bleeding.

Tfayli A, George J. Management of thrombocytopenia in patients with leukemia. Medscape Hematology-Oncology. January 28, 2008. Available at: <http://www.medscape.com/viewarticle/569207>. Accessed March 18, 2008.





Obesity is a risk factor for which of the following types of cancer?

- A. Renal
- B. Endometrial
- C. Esophageal adenocarcinoma
- D. All of the above

# A

## D. All of the above.

Excess body weight is becoming increasingly recognized as an important risk factor for cancer. Renehan and colleagues conducted a systematic review and meta-analysis of 141 articles that included 282,137 cases of cancer. Using data from these studies, they calculated the effect of gaining weight that was equivalent to an increase of 5 kg/m<sup>2</sup> in body mass index (BMI). Such a weight gain doubles the risk for esophageal adenocarcinoma in both sexes (relative risk [RR], 1.52; P < .0001). In women, it also slightly more than doubles the risk for endometrial cancer (RR, 1.59; P < .0001) and increases risk for renal cancer by about a third (RR, 1.34; P < .0001).

Tfayli A, George J. Management of thrombocytopenia in patients with leukemia. Medscape Hematology-Oncology. January 28, 2008. Available at: <http://www.medscape.com/viewarticle/569207>. Accessed March 18, 2008.



Which of the following is NOT among the uses of PET imaging in the management of cervical cancer?

- A. Initial diagnosis
- B. Staging
- C. Treatment planning
- D. Assessment of prognosis

# A

## A. Initial diagnosis.

The use of functional imaging techniques, such as FDG-PET and PET-CT, to manage patients with cervical cancer is constantly increasing. Current roles include pretreatment staging and diagnosis of *recurrent disease*. Reports have also shown ability to predict survival based on pre- and posttherapy scans. Cervical cancer spreads primarily through direct extension, although lymphatic and hematogenous spread can result in distant metastases. Traditionally, clinical examination and cross-projectional imaging have been used to stage cervical cancer but are accurate in only 60% of cases. Detection of lymphatic metastases seems to be more successful with functional imaging techniques, such as FDG-PET or PET-CT.

Gold MA. PET in cervical cancer — implications for 'staging,' treatment planning, assessment of prognosis, and prediction of response. *J Natl Compr Canc Netw*. 2008;6:37-45.

Available at: <http://www.medscape.com/viewarticle/569867>. Accessed March 18, 2008.



A 63-year-old man with a remote history of tobacco use presents with hematuria. He undergoes a transurethral resection (TUR), which reveals T1 superficial bladder cancer.

**What is his risk for bladder cancer recurrence in the next 5 years without further therapy?**

- A. 10%
- B. 30%
- C. 50%
- D. 70%

# A

## D. 70%.

TUR remains the surgical mainstay for the diagnosis and treatment of stages Ta and T1 bladder cancer. After this procedure, the 10-year disease-specific survival for Ta tumors is 85% and for T1 tumors it is 70%. The initial TUR provides pathologic material to determine the histologic type, grade, and depth of invasion. The findings help to direct additional therapy, dictate the follow-up schedule, and indicate prognosis. In a literature review of more than 600 cases of T1 bladder tumors treated only by TUR, 75% to 90% recurred by 5- and 10-year follow-up. A third of the cancers progressed to muscle invasion within 5 years, 39% had progressed by 10 years, and 53% by 15 years.

Dalbagni G. The management of superficial bladder cancer. *Nat Clin Pract Urol.* 2007;4:254-260. Available at: [http://www.medscape.com/viewarticle/556209\\_1](http://www.medscape.com/viewarticle/556209_1). Accessed March 18, 2008.



A 35-year-old woman presents with cervical lymphadenopathy and symptoms of fever, night sweats, and weight loss. An excisional biopsy of a supraclavicular lymph node reveals nodular sclerosing Hodgkin's lymphoma. Staging PET-CT shows bulky mediastinal lymphadenopathy (mediastinal/thoracic ratio  $> 1/3$ ), and she has a baseline erythrocyte sedimentation rate (ESR) of 50 mm/h.

**What favorable prognostic feature does this patient have for early-stage Hodgkin's lymphoma?**

- A. Age  $< 50$  years
- B. Presence of B symptoms
- C. ESR  $> 30$  mm/h
- D. All of the above

# A

## A. Age < 50 years.

The European Organization for Research and Treatment of Cancer (EORTC) defined prognostic features for favorable and unfavorable stage I or II Hodgkin's lymphoma based on age, number of involved nodal areas, ESR, bulky disease, and B symptoms. Favorable features include age < 50, no B symptoms or elevated ESR,  $\leq 3$  involved lymph node regions, and no bulky disease.

Mullen E, Zhong Y. Hodgkin's lymphoma: an update. J Nurse Pract. 2007;3:393-403.  
Available at: <http://www.medscape.com/viewarticle/559870>. Accessed March 18, 2008.





Temozolomide has emerged as an agent that is active against glioblastoma multiforme (GBM). What is the mechanism of action of this chemotherapeutic drug?

- A. Anthracycline
- B. Antimetabolite
- C. Alkylating agent
- D. Antitubulin agent

# A

## C. Alkylating agent.

Temozolomide (TMZ) is an orally administered alkylating agent of the imidazotetrazine class that is chemically related to dacarbazine. It is rapidly and completely absorbed and passes through the blood-brain barrier, creating cerebrospinal fluid concentrations that are 20% to 40% of plasma levels. The DNA repair protein MGMT removes alkyl groups from the O6 position of guanine, a target of alkylating agents, such as TMZ. In tumors, high expression of MGMT has been associated with resistance to treatment with alkylating agents. Inactivation of the *MGMT* gene by promoter methylation diminishes DNA repair activity and has been associated with longer overall survival in patients with GBM who are treated with alkylating agents.

Dehdashti AR, Hegi ME, Regli L, Pica A, Stupp R. New trends in the medical management of glioblastoma multiforme: the role of temozolomide chemotherapy. *Neurosurg Focus*. 2006;20:E6.  
Available at: [http://www.medscape.com/viewarticle/540151\\_1](http://www.medscape.com/viewarticle/540151_1). Accessed March 18, 2008.



Treatment options for stage I nonseminomatous germ cell tumor (NSGCT) include all of the following, EXCEPT:

- A. Surveillance or "watchful waiting"
- B. Retroperitoneal lymph node dissection (RPLND)
- C. Adjuvant chemotherapy
- D. High-dose chemotherapy

# A

## D. High-dose chemotherapy.

Surveillance is preferred by many doctors and patients because the vast majority of patients can be cured when they relapse. However, successful surveillance requires strict compliance on behalf of both doctor and patient. RPLND is the most accurate way to stage patients, and cure rates in expert hands approach 100%, but it is associated with potentially significant morbidity. Chemotherapy, usually with 2 cycles of bleomycin, etoposide, and cisplatin, is also associated with an excellent outcome, but there are concerns regarding longer-term toxicities, such as infertility and second cancers. High-dose chemotherapy with autologous stem cell support is feasible and potentially cures a proportion of patients with resistant disease. However, data on this treatment as initial therapy for higher-risk patients are scarce.

Vasey PA. Improving treatment of testis cancer. Medscape conference coverage from the American Society of Clinical Oncology 2006 Annual Meeting. Available at: <http://www.medscape.com/viewarticle/541603>. Accessed March 18, 2008.



The primary treatment for locoregionally advanced head and neck cancer consists of:

- A. Surgery
- B. Radiation therapy
- C. Chemoradiation therapy
- D. All of the above

# A

## C. Chemoradiation therapy.

Historically, locoregionally advanced head and neck cancer (HNC) was treated with surgery (with or without adjuvant radiotherapy) or radiotherapy alone. Only a minority of patients with locoregionally advanced disease can undergo adequate surgical resection, however, and the outcomes were poor with respect to survival and organ preservation. Furthermore, radiotherapy alone is not sufficient to successfully treat most HNC at intermediate or advanced stages. Recently, chemoradiotherapy was shown to markedly improve survival and organ preservation.

Seiwert TY, Salama JK; Vokes EE. The chemoradiation paradigm-head and neck cancer. *Nat Clin Pract Oncol.* 2007;4:156-171. Available at: <http://www.medscape.com/viewarticle/553553>. Accessed March 18, 2008.



Which of the following targeted agents is NOT a tyrosine kinase inhibitor that influences the human epidermal growth factor receptor (HER) family signaling pathway by binding to the intracellular domain of the receptors?

- A. Gefitinib (HER1 inhibitor)
- B. Erlotinib (HER1 inhibitor)
- C. Trastuzumab (HER2 inhibitor)
- D. Lapatinib (HER1/HER2 inhibitor)

# A

## C. Trastuzumab (HER2 inhibitor).

Tyrosine kinase inhibitors, such as gefitinib and erlotinib (HER1 inhibitors) and lapatinib (a HER1/HER2 inhibitor), influence the signaling pathway by interacting with the intracellular domain of the receptors of HER1 and HER2. Trastuzumab is a humanized monoclonal antibody that targets the extracellular domain of the HER2 receptor to prevent dimerization with other HER family members and subsequent downstream signaling events.

Briest S, Wolff AC. What's new in HER2-targeted therapy for breast cancer? Medscape conference coverage from the 30th Annual San Antonio Breast Cancer Symposium (SABCS). 2007.

Available at: <http://www.medscape.com/viewarticle/569533>. Accessed March 18, 2008.





Standard treatment for locally advanced epithelial ovarian cancer includes all of the following, EXCEPT:

- A. Debulking surgery
- B. Radiation therapy
- C. Intravenous chemotherapy
- D. Intraperitoneal chemotherapy

# A

## B. Radiation therapy.

Surgery and standard intravenous chemotherapy with a platinum-taxane combination induce complete remission in most patients with newly diagnosed ovarian cancer. However, most patients eventually relapse and die from their disease. Interest is growing in the intraperitoneal delivery of chemotherapy to patients with ovarian cancer who have minimal residual disease following initial cytoreductive surgery. Three randomized trials demonstrated an improvement in overall survival with intraperitoneal cisplatin compared with intravenous chemotherapy alone.

Roberts P. Should patients with ovarian cancer receive intraperitoneal chemotherapy following initial cytoreductive surgery? *Nat Clin Pract Oncol*. 2006;3:416-417.

Available at: [http://www.medscape.com/viewarticle/543868\\_1](http://www.medscape.com/viewarticle/543868_1). Accessed March 18, 2008.



A 57-year-old, obese white man has symptoms of chronic gastroesophageal reflux disease (GERD). Endoscopic evaluation reveals evidence of Barrett's esophagus with high-grade dysplasia.

**What is the recommended management for this disease?**

- A. Repeated endoscopy in 3-5 years
- B. Annual endoscopy
- C. Mucosal resection or endoscopic ablation therapies
- D. None of the above

# A

## C. Mucosal resection or endoscopic ablation therapies.

The American College of Gastroenterology guidelines state that "patients with chronic GERD symptoms are those who are most likely to have Barrett's esophagus and should undergo upper endoscopy." However, the grade of dysplasia determines the interval for surveillance endoscopy. In patients without dysplasia on 2 consecutive endoscopies with biopsies, a 3- to 5-year interval has been proposed. For patients with low-grade dysplasia, annual surveillance is recommended. For patients with high-grade dysplasia, a mucosal resection should be attempted and the grade of dysplasia identified carefully by an expert gastrointestinal pathologist. Endoscopic ablation therapies can be considered as a viable alternative to surgery in this patient population.

Sharma P. Screening and surveillance for Barrett's esophagus in patients with GERD. *Medscape Gastroenterology*. March 3, 2008. Available at: <http://www.medscape.com/viewarticle/570235>. Accessed March 18, 2008.



Episodic acute overexposure to ultraviolet (UV) radiation (ie, sunburn) is an important risk factor for which type of skin cancer?

- A. Squamous cell carcinoma
- B. Basal cell carcinoma
- C. Melanoma
- D. B and C
- E. A and B

# A

## D. B and C.

Sunburn is an important risk factor for 2 types of skin cancer: basal cell carcinoma and melanoma. Melanoma is the most lethal type of skin cancer. A meta-analysis of 57 studies indicated that the relative risk for melanoma among persons with sunburn history compared with those without sunburn history was 2.03 (95% confidence interval [CI], 1.73-2.37).

Saraiya M, Balluz L, Wen XJ, Joseph DA. Sunburn prevalence among adults — United States, 1999, 2003, and 2004. *MMWR*. 2007;56:524-528. Available at: [http://www.medscape.com/viewarticle/557917\\_1](http://www.medscape.com/viewarticle/557917_1). Accessed March 18, 2008.



**Risk factors for anthracycline-induced cardiomyopathy include:**

- A. Hypertension
- B. Simultaneous administration with other neoplastic agents
- C. Poor nutritional status
- D. All of the above

# A

## D. All of the above.

In addition to increasing cumulative doses of anthracyclines, older age, preexisting cardiac disease, hypertension, irradiation to the mediastinum, simultaneous administration of other antineoplastic agents, poor nutritional status, previous treatment with anthracyclines, and diabetes mellitus have been identified as the most important risk factors for anthracycline-induced cardiotoxicity.

Perik PJ, de Korte MA, van Veldhuisen DJ, Gietema JA, Sleijfer DT, de Vries EGE. Cardiotoxicity associated with the use of trastuzumab in breast cancer patients. *Expert Rev Anticancer Ther.* 2007;7:1763-1771. Available at: [http://www.medscape.com/viewarticle/568845\\_1](http://www.medscape.com/viewarticle/568845_1). Accessed March 18, 2008.





What is a possible intervention to treat breathlessness in end-stage cancer patients?

- A. Fanning the face
- B. Opioids
- C. Inhaled furosemide
- D. All of the above

# A

## D. All of the above.

It has been shown that facial cooling, with use of a small mechanical fan, in the areas subserved by the second and third branches of the trigeminal nerve reduces the sensation of breathlessness and may be efficacious in cancer patients. It is an ideal, inexpensive tool to incorporate into a "breathlessness/crisis plan." Opioids are an effective pharmacologic treatment for breathlessness; however, most evidence to date comes from nonmalignant disease. A number of case reports and uncontrolled trials of inhaled furosemide have indicated that it may relieve dyspnea in terminal cancer patients.

Booth S, Moosavi SH, Higginson IJ. The etiology and management of intractable breathlessness in patients with advanced cancer: a systematic review of pharmacological therapy. *Nat Clin Pract Oncol.* 2008;5:90-100. Available at: [http://www.medscape.com/viewarticle/569064\\_1](http://www.medscape.com/viewarticle/569064_1). Accessed March 18, 2008.



A 53-year-old white man with no family history of colorectal cancer had his first screening colonoscopy. He was found to have a < 1 cm tubular adenoma with low-grade dysplasia.

**When should he schedule his next colonoscopy?**

- A. 1 year
- B. 3 years
- C. 5 years
- D. 10 years

# A

## C. 5 years.

The current recommendations from the joint American Cancer Society/US Multisociety Task Force on Colorectal Cancer are that 5- to 10-year intervals are appropriate for follow-up of patients at low risk for subsequent advanced adenomas. To address this issue, a group from the University of Pennsylvania identified 1002 patients with 1 or 2 small adenomas at their first colonoscopy who had  $\geq 3$  colonoscopies performed within a 13-year period. Among 88 patients who had at least 1 adenoma at the third colonoscopy, 3 (3.4%) had advanced adenomas. Although this study was small, the authors concluded that it is reasonable to continue 5-year surveillance in patients with 1 to 2 small tubular adenomas found at baseline examination.

Rex DK. Colonoscopy and colorectal cancer prevention. Medscape conference coverage from the American College of Gastroenterology (ACG) 2007 Annual Scientific Meeting and Postgraduate Course.

Available at: <http://www.medscape.com/viewarticle/565553>. Accessed March 18, 2008.



What is the main cause of hepatocellular carcinoma (HCC) in the United States?

- A. Hepatitis B infection
- B. Hepatitis C infection
- C. Alcohol abuse
- D. HIV infection

# A

## B. Hepatitis C infection.

The incidence of HCC in the United States is increasing, and infection with the hepatitis C virus is believed to be the major cause. Indeed, HCC is the fastest-growing cause of cancer-related death in the United States. HCC is generally associated with cirrhosis, particularly due to hepatitis C, hepatitis B, alcohol abuse, hereditary hemochromatosis, and primary biliary cirrhosis. This malignancy is becoming recognized as an early complication and the most frequent cause of death in persons with viral-associated cirrhosis. Effective therapy for hepatitis B and C has led to more patients with cirrhosis being diagnosed and screened.

Befeler AS. HCC – current concepts and considerations. Medscape conference coverage from the 58th Annual Meeting of the American Association for the Study of Liver Diseases (AASLD). 2007.

Available at: <http://www.medscape.com/viewarticle/567229>. Accessed March 18, 2008.



Rituximab in combination with CHOP (R-CHOP) was approved in 2006 by the FDA for treatment of diffuse large B-cell lymphoma (DLBCL).

**The addition of rituximab to standard chemotherapy has been shown to benefit which patient population?**

- A. Older patients
- B. Low-risk International Prognostic Index (IPI) patients
- C. High-risk IPI patients
- D. All of the above

# A

## D. All of the above.

Age is an important issue in the treatment of patients with DLBCL because of the greater risk for comorbid conditions. Therefore, strategies were initiated to use the IPI risk factors and the age-adjusted IPI in conjunction with stage, serum lactate dehydrogenase, and performance score as stratification factors to design therapeutic trials and appropriately select patients. These strategies were followed in the landmark R-CHOP trials, including the Groupe d'Etude des Lymphomes de l'Adulte (GELA) and the US Intergroup Eastern Cooperative Oncology Group (ECOG) 4494/Cancer and Leukemia Group B (CALGB) 9793 trials. Results have shown that R-CHOP is effective in both older and younger patients and in low- and high-risk IPI groups.

Habermann TM. Antibody therapy in diffuse large b-cell non-Hodgkin's lymphoma. Medscape Hematology-Oncology. May 31, 2007. Available at: <http://www.medscape.com/viewarticle/557205>. Accessed March 18, 2008.





The annual risk for endometrial cancer in post-breast cancer patients after 5 years of adjunctive therapy with tamoxifen is 2 cases per \_\_\_\_\_ .

- A. 100,000
- B. 10,000
- C. 1000
- D. 100

# A

## C. 1000.

In a randomized trial conducted by the National Surgical Adjuvant Breast and Bowel Project (NSABP), tamoxifen (20 mg daily) was compared with placebo as adjuvant breast cancer therapy. The relative risk for endometrial cancer after 5 years of tamoxifen use was 2.2; this is equivalent to an annual hazard rate of approximately 2 cases per 1000 women. Of note, most women who develop uterine cancer during tamoxifen therapy present with vaginal bleeding, have early-stage disease, and usually (but not always) have well-differentiated tumors. Furthermore, the benefits of tamoxifen in the adjuvant breast cancer setting far outweigh the small risk for uterine cancer. Currently, patients receiving tamoxifen should undergo a routine pelvic examination with prompt evaluation of abnormal vaginal bleeding by endometrial biopsy.

Kerr M. Endometrial cancer in woman on tamoxifen requires no unusual treatment. Reuters Health Information. 2007. Available at: <http://www.medscape.com/viewarticle/561892>. Accessed March 19, 2008.



**Which of the following statements concerning the American Cancer Society nutrition and exercise guidelines for cancer survivors is FALSE?**

- A. For patients who are obese or overweight, slow weight loss (no more than 2 lbs weekly) using a well-balanced diet and physical activity to achieve 5% to 10% weight loss can confer survival benefits
- B. Resistance exercise may improve bone strength and reduce risk for osteoporosis, and stretching exercise may improve range of motion in cancer survivors with lymphedema
- C. High-dose beta-carotenes may increase risk for lung cancer
- D. High doses of soy isoflavones as supplements may be recommended for women with estrogen-receptor-positive breast cancer

# A

## D. High doses of soy isoflavones as supplements may be recommended for women with estrogen-receptor-positive breast cancer.

The role of soy foods and supplements is uncertain. Soy may be an excellent source of protein; however, high doses of supplemental soy isoflavones are not recommended for women with estrogen-receptor-positive breast cancer because of the phytoestrogen content, which may stimulate growth of hormone-sensitive breast cancer.

Barclay L, Lie D. New nutrition and exercise guidelines for cancer survivors. Medscape Medical News. December 6, 2006. Available at: <http://www.medscape.com/viewarticle/549022>. Accessed March 18, 2008.



Is the following statement true or false? In patients with extensive small-cell lung cancer (SCLC) who respond to chemotherapy, administration of prophylactic cranial irradiation has been shown to reduce the risk for brain metastases and improve overall survival.

- A. True
- B. False

# A

## A. True.

The study, known as the European Organization for the Research and Treatment of Cancer (EORTC) 08993-22993, was conducted in patients with advanced SCLC who had responded to chemotherapy; this cohort was randomized to either the control group or to prophylactic cranial irradiation. Results after 1 year showed a significant reduction in the risk for brain metastases in the patients who had been irradiated and a significant improvement of survival. The 1-year cumulative incidence was 14.6% in the prophylactic cranial irradiation group compared with 40.4% in controls ( $P < .0001$ ; hazard ratio, 0.27; 95% CI, 0.16-0.44).

Chustecka Z. Prophylactic cranial irradiation in advanced lung cancer reduces brain metastases. Medscape Medical News. June 6, 2007. Available at: <http://www.medscape.com/viewarticle/557816>. Accessed March 18, 2008.



Is cytoreductive nephrectomy recommended for patients with metastatic renal cell carcinoma (RCC) before cytokine or targeted therapy?

- A. Yes
- B. No

# A

## A. Yes.

Approximately 30% of patients with RCC present with stage IV disease. Two randomized trials examined nephrectomy followed by interferon vs immediate therapy with interferon in patients presenting de novo with metastatic kidney cancer. Both trials showed significant trends toward survival favoring nephrectomy before interferon. Therefore, in the cytokine era, cytoreductive nephrectomy before the institution of cytokine therapy became standard. Clinical trials in patients who have received targeted therapy have required that patients have nephrectomy before enrollment, based largely on the cytokine results.

Motzer RJ, Kuzel TM, Hudes GR. NCCN clinical practice guidelines in oncology: kidney cancer. Medscape Hematology-Oncology. March 5, 2008. Available at: <http://www.medscape.com/viewarticle/570678>. Accessed March 18, 2008.





Is the following statement true or false? Compared with axillary lymph node dissection (ALND) for patients with early-stage breast cancer, sentinel lymph node biopsy (SLNB) is associated with more locoregional recurrences and a relatively high false-negative rate but fewer postoperative side effects.

- A. True
- B. False

# A

## A. True.

The Sentinella/GIVOM Trial was a multicenter randomized trial designed to assess the efficacy and safety of SLNB compared with ALND. Investigators randomized 749 patients: Patients in the ALND group underwent SLNB immediately followed by standard ALND. Patients in the SLNB group underwent SLNB with frozen section examination; ALND was performed only in patients with evidence of metastatic disease on SLNB. In cases with negative results on SLNB frozen section examination but positive definitive histology, surgeons performed a delayed ALND. Results of SLNBs were positive in 28.5%. In the ALND group, investigators found positive results on non-SLNBs in 18 patients who had negative results on SLNBs, for a false-negative rate of 16.7% (18 of 108). The SLNB group had significantly fewer postoperative side effects but more locoregional recurrences.

Zavagno G, De Salvo GL, Scalco G, et al. A randomized clinical trial on sentinel lymph node biopsy versus axillary lymph node dissection in breast cancer: results of the Sentinella/GIVOM trial. *Ann Surg.* 2008;247:207-213. Available at: [http://www.medscape.com/viewarticle/571329\\_1](http://www.medscape.com/viewarticle/571329_1). Accessed March 18, 2008.



The immunomodulating monoclonal antibody alemtuzumab is associated with which infectious complication?

- A. Cytomegalovirus (CMV) infection
- B. *Pneumocystis (carinii) jiroveci* pneumonia (PCP)
- C. Invasive fungal infection
- D. All of the above

# A

## D. All of the above.

Alemtuzumab is a humanized monoclonal antibody directed against CD52, a surface antigen expressed in high levels by B-cell chronic lymphocytic leukemia (B-CLL) and T-prolymphocytic leukemia cells. Alemtuzumab has been shown to destroy target cells through antibody-dependent cellular cytotoxicity, complement-mediated cytotoxicity, and induction of apoptosis. CD4 and CD8 T-cell counts reach their nadir approximately 4 weeks after initiation of alemtuzumab. High rates of standard and opportunistic infections, such as PCP, invasive aspergillosis, candidiasis, disseminated varicella-zoster virus, mycobacterial infection, and CMV, and extremely delayed recovery of functional immune status, have been reported with alemtuzumab use in salvage therapy of refractory or relapsed CLL.

Koo S, MD, Baden LR. Infectious complications associated with immunomodulating monoclonal antibodies used in the treatment of hematologic malignancy. *J Natl Compr Canc Netw.* 2008;6:202-213. Available at: [http://www.medscape.com/viewarticle/570872\\_3](http://www.medscape.com/viewarticle/570872_3). Accessed March 18, 2008.



What is the 5-year survival rate for patients who undergo curative hepatic resection of colorectal liver metastases?

- A. < 5%
- B. 10% to 20%
- C. 30% to 40%
- D. > 70%

# A

## C. 30% to 40%.

In patients with unresectable metastatic colorectal cancer, modern systemic chemotherapy regimens provide median survival times ranging from 12 to 24 months, and survival beyond 5 years is uncommon. In contrast, historical 5-year survival rates for patients undergoing hepatic resection with curative intent range from 30% to 40%, with several more recent series reporting rates approaching 60%.

Chu E, Williams S, Egert D. A cure for metastatic colorectal cancer? Advances in the treatment of hepatic metastases. *Medscape Hematology-Oncology*. October 31, 2007.

Available at: <http://www.medscape.com/viewprogram/8083>. Accessed March 18, 2008.



Prostate-specific antigen (PSA) testing and digital rectal examination (DRE) for prostate cancer screening meet all of the following criteria for an effective screening tool EXCEPT:

- A. Prostate cancer is prevalent and serious enough to warrant screening
- B. Early, presymptomatic disease is detected by the screening test
- C. Evidence shows that early discovery of the disease reduces morbidity and/or mortality
- D. None of the above

# A

## C. Evidence shows that early discovery of the disease reduces morbidity and/or mortality.

Support for mass screening for prostate cancer is not universal. Several studies suggest that screening PSA does not affect disease-specific survival and may result in overdiagnosis of insignificant cases of prostate cancer. Screening policy must, therefore, balance financial considerations and scientific rationale. The feasibility of a screening program must meet certain criteria to be an efficacious tool. For example, prostate cancer meets the requirement of being a prevalent disease, which is serious enough to warrant screening. Early, presymptomatic disease may be detected when PSA and DRE are used together. However, whether early discovery of the disease reduces morbidity or mortality remains unproven.

Linn MM, Ball RA, Maradiegue A. Prostate-specific antigen screening: friend or foe? *Urol Nurs*. 2007;27:481-489. Available at: [http://www.medscape.com/viewarticle/568053\\_4](http://www.medscape.com/viewarticle/568053_4). Accessed March 18, 2008.





Is the following statement true or false? High-dose chemotherapy with autologous stem cell transplantation (ASCT) for patients with multiple myeloma (MM) who responded to initial treatment is associated with improved progression-free survival compared with standard chemotherapy.

- A. True
- B. False

# A

## B. False.

Although some randomized studies have shown benefit with high-dose chemotherapy, these regimens cure few if any patients. For example, a recently reported randomized trial conducted by a Spanish cooperative group evaluating high-dose therapy for MM patients who responded to the initial treatment showed no difference in progression-free or overall survival between patients who were switched to high-dose therapy and those who continued standard chemotherapy.

Berenson JR, Yeh H. New directions in the treatment of multiple myeloma. Medscape conference coverage from the American Society of Hematology 47th Annual Meeting. 2005.

Available at: <http://www.medscape.com/viewarticle/522655>. Accessed March 14, 2008.



Which characteristic is least likely for never-smokers who develop non-small cell lung cancer (NSCLC), compared with smokers who develop NSCLC?

- A. Young
- B. Female
- C. Better survival rate
- D. Worse survival rate

# A

## D. Worse survival rate.

Never-smokers in whom NSCLC develops are more likely to be young, be female, and have poorly differentiated tumors with higher maximum standardized uptake values on PET scans. Never-smokers with early-stage cancer have a significantly better survival rate than smokers. Patients with a smoking history of 20 or more pack-years have worse survival. Thus, smoking not only causes lung cancer; once NSCLC is diagnosed it worsens the prognosis. A biological, hormonal, and genetic explanation is currently lacking to explain these findings.

Bryant A, Cerfolio RJ. Differences in epidemiology, histology, and survival between cigarette smokers and never-smokers who develop non-small cell lung cancer. *Chest*. 2007;132:185-192.  
Available at: <http://www.medscape.com/viewarticle/522655>. Accessed March 18, 2008.



Which of the following is universally considered to be the standard of care for resected pancreatic adenocarcinoma?

- A. Chemoradiation
- B. Chemoradiation plus chemotherapy
- C. 5-fluorouracil (5-FU)
- D. None of the above

# A

## D. None of the above.

There is no consensus about what constitutes "standard" adjuvant therapy for resected pancreatic cancer. Standards of care vary geographically: Chemoradiation followed by chemotherapy is considered optimal therapy in North America based on GITSG and RTOG-9704 studies, while chemotherapy alone is the current standard in Europe supported by the ESPAC-1 and CONKO-001 studies. ESPAC-3 (a US-based randomized phase 3 trial) is currently enrolling patients with resected pancreatic cancer to compare 5-FU plus folinic acid vs gemcitabine vs observation. The absolute benefit of radiation remains to be defined.

Saif MW. Pancreatic cancer: 2007 update. Medscape conference coverage from the American Society of Clinical Oncology (ASCO) 43rd Annual Meeting. Available at: <http://www.medscape.com/viewarticle/561453>. Accessed March 18, 2008.



Imatinib is a Bcr-Abl tyrosine kinase inhibitor (TKI) that has demonstrated efficacy in which phase of chronic myelogenous leukemia (CML)?

- A. Chronic
- B. Accelerated
- C. Myeloid blast
- D. All of the above

# A

## D. All of the above.

Imatinib was the first Bcr-Abl TKI to demonstrate significant activity in all phases of CML. In the pivotal phase 3 International Randomized Study of Interferon [IFN], patients with newly diagnosed Philadelphia chromosome plus chronic phase CML were randomized to imatinib or IFN plus cytarabine. Complete hematologic responses (CHR) had been achieved in 95% of imatinib-treated patients compared with 55% of IFN-treated patients; major cytogenetic responses (MCyR) had occurred in 85% vs 22%; and complete cytogenetic responses (CCyR) in 74% vs 9%. In a phase 2 study of patients with accelerated phase CML, imatinib resulted in a sustained CHR in 34% of patients, MCyR in 24%, and CCyR in 17%. In a phase 2 trial in patients with myeloid blast phase CML, imatinib resulted in a sustained CHR in 8% of patients, MCyR in 16%, and CCyR in 7%.

Jabbour E, Cortes JE, Ghanem H, O'Brien S, Kantarjian HM. Targeted therapy in chronic myeloid leukemia. *Expert Rev Anticancer Ther.* 2008;8:99-110. Available at: [http://www.medscape.com/viewarticle/568945\\_1](http://www.medscape.com/viewarticle/568945_1). Accessed March 18, 2008.





Is the human papillomavirus (HPV) vaccine effective at eliminating HPV in women who are already infected?

- A. Yes
- B. No

# A

## B. No.

The HPV vaccine is FDA-approved to prevent cervical cancer, genital warts, and precancerous lesions associated with HPV. In a community-based study, investigators in Costa Rica randomized HPV DNA-positive women to receive either bivalent HPV vaccine (against the most oncogenic subtypes, 16 and 18) or a control hepatitis A vaccine. Clearance rates for HPV 16 and 18 were similar in the 2 groups. These data confirm that HPV vaccine has no therapeutic benefit in women with preexisting infection, reinforcing the importance of immunizing women before they initiate sexual activity and are potentially exposed to infection. The data also show that it is common for oncogenic strains of HPV to clear spontaneously.

Schwenk TL. Is HPV vaccine therapeutic in women with preexisting infection? *Journal Watch*. 2007;6(8). Available at: <http://www.medscape.com/viewarticle/562609>. Accessed March 18, 2008.



Which of the following short-acting opioids used for breakthrough cancer-related pain has the most rapid onset of action?

- A. Morphine
- B. Oxycodone
- C. Methadone
- D. Transmucosal fentanyl

# A

## D. Transmucosal fentanyl.

The more lipophilic a medication is, the easier it passes the blood-brain barrier and the quicker it can get to the brain. Morphine and oxycodone are fairly hydrophilic and, therefore, do not rapidly enter the central nervous system (CNS), and onset of pain relief may be unpredictable. Methadone is intermediate and has short-acting and long-acting qualities, with pharmacokinetics that consequently are difficult to manage. The fentanyl products are very lipophilic, with rapid onset in and out of the CNS. They also do not accumulate for a long period.

Stanos S. Breakthrough pain: novel approaches. Medscape Hematology-Oncology. December 12, 2007. Available at: <http://www.medscape.com/viewarticle/566654>. Accessed March 18, 2008.



Antidepressants have been shown to be effective for the treatment of hot flashes related to hormonal therapies for breast cancer. However, some may inhibit the enzyme CYP2D6, which converts tamoxifen to its active form and thus may interfere with tamoxifen activity.

**Which of the following antidepressants inhibits CYP2D6 to the greatest degree?**

- A. Fluoxetine
- B. Sertraline
- C. Paroxetine
- D. Venlafaxine

# A

## C. Paroxetine.

Several antidepressants reduce hot flashes. Venlafaxine and paroxetine appear to be the most effective and are associated with about a 60% to 70% reduction. These newer antidepressants do not decrease hot flashes to the same extent as hormones but are better than placebo. Of importance, some of these drugs, such as paroxetine, interfere with the metabolism of tamoxifen. For tamoxifen to be effective, it needs to be converted in the body by CYP2D6. Some drugs inhibit that enzyme, with paroxetine being one of the chief offenders. Venlafaxine does not appear to inhibit CYP2D6 to any significant degree. Thus, if a patient is receiving tamoxifen therapy, she should avoid paroxetine and other drugs that inhibit the CYP2D6 enzyme.

Loprinzi CL. What patients need to know about hot flashes. Medscape Hematology-Oncology. February 27, 2008. Available at: <http://www.medscape.com/viewarticle/570671>. Accessed March 18, 2008.



Which of the following statements about malignant pleural mesothelioma (MPM) is FALSE?

- A. The incidence of MPM is declining in developing countries
- B. Chemotherapy is the mainstay of treatment for most patients who present with inoperable MPM
- C. Randomized trials have now confirmed that combining antifolates with platinum-based therapy confers a survival benefit
- D. No standard therapy has yet been defined as the second-line treatment of choice for MPM

# A

## A. The incidence of MPM is currently declining in developing countries.

The incidence of MPM is anticipated to increase within the next 10 years in both Europe and the developing nations. Although the outcome for patients remains poor, recent advances in the systemic treatment of this disease have emerged. Two pivotal randomized trials compared cisplatin-antifolate regimens with cisplatin alone; both studies demonstrated improvements in symptomatic and objective response rates and progression-free and overall survival for patients receiving cisplatin-antifolate regimens. Currently, the cisplatin and antifolate combination is to be regarded as the standard chemotherapy regimen in patients with good performance and unresectable disease. No standard has been defined for second-line therapy of MPM.

Fennell DA, Gaudino G, O'Byrne KJ, Mutti L, van Meerbeeck J. Advances in the systemic therapy of malignant pleural mesothelioma. *Nat Clin Pract Oncol.* 2008;5(3).

Available at: [http://www.medscape.com/viewarticle/569355\\_1](http://www.medscape.com/viewarticle/569355_1). Accessed March 18, 2008.





All of the following are known to be strong risk factors for gastric cancer EXCEPT:

- A. *Helicobacter pylori* infection
- B. Smoking
- C. Alcohol abuse
- D. Previous gastric surgery

# A

## C. Alcohol abuse.

Chronic bacterial infection with *H pylori* is the strongest risk factor for stomach cancer. *H pylori* infection is associated with chronic atrophic gastritis, and patients with a history of prolonged gastritis have a 6-fold increase in risk for gastric cancer. Interestingly, this association is particularly strong for tumors located in the antrum, body, and fundus of the stomach but does not seem to hold for tumors originating in the cardia. Smoking is associated with an increased incidence of stomach cancer in a dose-dependent manner, both for number of cigarettes and duration of smoking. Previous surgery is also implicated as a risk factor. The rationale is that surgery alters the pH of the stomach, which may in turn lead to metaplastic and dysplastic changes in luminal cells. Evidence for alcohol as a risk factor for gastric cancer is weak.

Fuccio L, Zagari RM, Minardi ME, Bazzoli F. Systematic Review. *Helicobacter pylori* eradication for the prevention of gastric cancer. *Aliment Pharmacol Ther.* 2007;25:133-141.

Available at: [http://www.medscape.com/viewarticle/550716\\_1](http://www.medscape.com/viewarticle/550716_1). Accessed March 18, 2008.



Is the following statement true or false? HIV-associated Kaposi's sarcoma (KS) skin lesions regress within the first year of highly active antiretroviral therapy (HAART) in most patients.

- A. True
- B. False

# A

## A. True.

HIV-associated KS typically occurs in patients who have low CD4+ T-cell counts (<150 cells/microliter) and high viral loads (>10,000 copies/mL). In most patients, KS lesions regress within the first year of HAART, as immune function improves and viral load declines.

Goldberg J. An unusual cluster of HIV-associated Kaposi sarcoma? *AIDS Clin Care*. 2007. Available at: <http://www.medscape.com/viewarticle/565475>. Accessed March 18, 2008.



All of the following statements regarding prophylactic bilateral salpingo-oophorectomy (PBSO) in *BRCA* mutation carriers are true, EXCEPT:

- A. It reduces the risk for ovarian cancer by about 90% in this population
- B. It reduces the risk for breast cancer by about 50% in this population
- C. It reduces overall mortality in this population
- D. Hormone replacement therapy is not recommended after PBSO-related early surgical menopause

# A

## D. Hormone replacement therapy is not recommended after PBSO-related early surgical menopause.

PBSO is currently the prevailing preventive choice for *BRCA* mutation carriers. PBSO can reduce the risk for ovarian cancer by about 90% (range, 85% to 100%) and breast cancer by about 50% (range, 46% to 68%). Furthermore, a recent study provided evidence that PBSO reduces not only cancer incidence but also overall mortality. Data indicate that the earlier PBSO is performed, the greater the beneficial effect. This observation indicates that hormone replacement therapy (HRT) should be considered in these women. *BRCA1* and *BRCA2* mutation carriers undergoing PBSO after completion of childbearing should decide about short-term HRT after oophorectomy largely on the basis of quality-of-life issues. If HRT is used, the patients should consider discontinuing treatment at the time of the expected natural menopause.

Roukos DH, Briasoulis E. Individualized preventive and therapeutic management of hereditary breast ovarian cancer syndrome. *Nat Clin Pract Oncol*. 2007;4:578-590.

Available at: [http://www.medscape.com/viewarticle/562985\\_5](http://www.medscape.com/viewarticle/562985_5). Accessed March 18, 2008.



Which of the following statements regarding acute lymphoblastic leukemia (ALL) is FALSE?

- A. About 40% of all adults with ALL achieve long-term, disease-free survival compared with 80% to 90% in children
- B. Middle-aged and young adults have better outcomes with standard therapy than with pediatric regimens
- C. Adolescents and young adults with ALL have better outcomes if treated by a pediatric oncologist rather than an adult oncologist
- D. None of the above

# A

## B. Middle-aged and young adults have better outcomes with standard therapy than with pediatric regimens.

Most treatment trials in adults are based loosely on regimens that were beneficial in children with high-risk disease, although at best, 40% of adults with ALL achieved long-term, disease-free survival compared with 80% to 90% in children. Studies have suggested that rather than receiving modified pediatric regimens, adult patients with ALL should receive precisely the same intensive regimens used by pediatricians to treat their younger adult patients. It has been shown that an adolescent or young adult with ALL will fare better if treated by a pediatric oncologist rather than an adult oncologist. Three trials reported that pediatric-type regimens applied to middle-aged and younger adults with ALL yielded better results than standard therapy in adults.

Stone RM. Update on acute lymphoblastic leukemia and acute promyelocytic leukemia. *Medscape Hematology-Oncology*. March 16, 2007. Available at: [http://www.medscape.com/viewarticle/553564\\_1](http://www.medscape.com/viewarticle/553564_1). Accessed March 18, 2008.





What is the most common histologic type of thyroid carcinoma?

- A. Anaplastic
- B. Medullary
- C. Follicular
- D. Papillary

# A

## D. Papillary.

Papillary cancer accounts for about 85% of thyroid carcinomas.

Tuttle RM. NCCN thyroid carcinoma guidelines update. Medscape Hematology-Oncology 2007.  
Available at: <http://www.medscape.com/viewarticle/555684>. Accessed March 18, 2008.



Human papillomavirus (HPV) infection is associated with which type of cancer?

- A. Cervical
- B. Anogenital
- C. Head and neck
- D. All of the above

# A

## D. All of the above.

Cervical cancer is a major cause of mortality in women worldwide and is initiated by infection with high-risk HPVs. These viruses, especially HPV-16, are associated with other anogenital cancers and a subgroup of head and neck cancers. Indeed, HPV infection could account for the development of head and neck cancer in persons who lack the classic risk factors for this disease (tobacco and alcohol abuse).

Psyrrri A, DiMaio D. Human papillomavirus in cervical and head-and-neck cancer. *Nat Clin Pract Oncol*. 2008;5:24-31. Available at: <http://www.medscape.com/viewarticle/567333>. Accessed March 18, 2008.



"Triple-negative" breast cancer has been defined by modern genomic techniques as which distinct breast tumor subset?

- A. Luminal A
- B. Luminal B
- C. Basal-like
- D. "Normal"-like

# A

## C. Basal-like.

The use of modern genomic techniques has significantly enhanced our understanding of breast cancer biology. Five distinct breast cancer tumor subsets have been recognized, including hormone receptor (HR)-positive luminal A and B, human epidermal growth receptor 2 (HER2)-positive, "normal"-like, and basal-like. This final group is frequently identified as "triple negative" by conventional immunohistochemical techniques because it lacks staining for estrogen receptor, progesterone receptor, and HER2. Triple-negative tumors, which often overexpress the epidermal growth factor receptor 1 and are positive for CK 5 and/or 6, are typically high grade and are associated with a high risk for relapse within the first several years after initial diagnosis. Long-term follow-up of triple-negative cohorts has demonstrated a worse prognosis for the triple-negative subgroups than for those that are HR-positive.

Winer EP, Mayer EL. Optimizing treatment of "triple-negative" breast cancer. Medscape conference coverage from the 30th Annual San Antonio Breast Cancer Symposium (SABCS). 2007. Available at: <http://www.medscape.com/viewarticle/569483>. Accessed March 18, 2008.



What is the best treatment approach for aggressive nonmelanoma skin cancer (NMSC) when disfigurement or functional impairment is a risk?

- A. Mohs micrographic surgery
- B. Radiation therapy
- C. Imiquimod
- D. Photodynamic therapy

# A

## A. Mohs micrographic surgery.

Surgery is the most frequent approach used to treat NMSC. The gold standard for treatment continues to be Mohs micrographic surgery, but owing to the time and expense involved with this procedure, it is indicated only in patients with aggressive tumors or those for whom disfigurement or functional impairment is a risk. Although radiation therapy is effective, its use is limited because of the side effects, but it can be used in certain patients who are not surgical candidates. Imiquimod is a topical immune-response modulator that is effective against superficial basal cell carcinoma (BCC), small nodular BCC, and squamous cell carcinoma (SCC). Photodynamic therapy involves application of a photosensitizing compound to the skin that preferentially accumulates within the tumor cell and is then activated by a light source. Photodynamic therapy is effective in treating SCC in situ and superficial BCC.

Neville JA, Welch E, Leffell DJ. Management of nonmelanoma skin cancer in 2007. *Nat Clin Pract Oncol.* 2007;4:432-469. Available at: [http://www.medscape.com/viewarticle/560586\\_1](http://www.medscape.com/viewarticle/560586_1). Accessed March 18, 2008.





Bladder cancer is the fourth most common cancer in men and the eighth most common in women. As with many other diseases, the earlier that bladder cancer is diagnosed, the better the patient's long-term prognosis.

### What is the best screening test for bladder cancer?

- A. Urine dipstick test
- B. Urine cytology
- C. Cystoscopy
- D. No screening test is useful for universal screening

# A

## D. No screening test is useful for universal screening.

Although bladder cancer can cause significant morbidity and mortality, no screening tests have proved to have the sensitivity and specificity necessary to be clinically beneficial for universal screening. The clinical finding most commonly associated with bladder cancer is hematuria. In patients with this sign, cystoscopic examination of the bladder and imaging of the urinary tract are performed to rule out urologic malignancy. Microscopic hematuria, however, lacks appropriate specificity to prevent unnecessary urologic evaluation in many patients. Routine screening for bladder cancer by testing for hematuria in asymptomatic patients is discouraged.

Rao PK, Jones S. Screening for bladder cancer in primary care: a comprehensive review. Medscape Hematology-Oncology. January 25, 2008. Available at: <http://www.medscape.com/viewprogram/8618>. Accessed March 18, 2008.



What is a contraindication to the use of bevacizumab in patients with metastatic non-small-cell lung cancer (NSCLC)?

- A. Previous hemoptysis
- B. Brain metastases
- C. Anticoagulation
- D. All of the above

# A

## D. All of the above.

Sandler and colleagues reported a survival benefit with the addition of bevacizumab to carboplatin and paclitaxel, a finding that represents the first time median survival has been extended beyond 1 year in advanced NSCLC. Patients in the bevacizumab group demonstrated a significantly higher response rate, improved progression-free survival, and better median overall survival than the chemotherapy-alone arm. The researchers concluded that carboplatin/paclitaxel in combination with bevacizumab should be the new standard first-line approach for patients with nonsquamous NSCLC, no previous hemoptysis, and no brain metastases and for those not receiving therapeutic anticoagulation.

Bonomi PD, Hensing TA, Hitt E. Individualizing care for patients with advanced NSCLC. *Medscape Hematology-Oncology*. September 29, 2006. Available at: <http://www.medscape.com/viewprogram/6040>. Accessed March 18, 2008.



Is the following statement true or false? The use of vitamin and mineral supplements tends to increase after a cancer diagnosis.

- A. True
- B. False

# A

## A. True.

Vitamin and mineral use is widespread in cancer patients and long-term cancer survivors and is frequently higher than that of the general population. Three studies that evaluated changes in supplement use after a diagnosis of cancer showed an increase. The researchers also considered different types of cancer and found that breast cancer patients had the highest use of multivitamins, between 57% and 62%; use by prostate cancer patients was between 3% and 23%.

Chustecka Z. Vitamin and mineral use widespread among cancer patients. Medscape Medical News. February 12, 2008. Available at: <http://www.medscape.com/viewarticle/570103>. Accessed March 18, 2008.



Which of the following statements about testicular cancer is FALSE?

- A. Survivors are at substantial risk for second cancers
- B. Survivors with second cancers have poorer survival than patients with comparable first cancers
- C. It is incurable, except in a small percentage of men
- D. Treatment can limit treatment options for second cancers

# A

## B. Survivors with second cancers have poorer survival than patients with comparable first cancers.

Most men with testicular cancer can now be cured, with a 10-year relative survival of 95%. Testicular cancer survivors, many of whom have undergone radiotherapy, are at substantial risk for second cancers, however. Approximately one third of men who are diagnosed with a testicular seminoma at age 35 years will have a second case of cancer in the next 40 years. Treatment for testicular cancer may limit treatment options for second cancers, thereby adversely affecting survival after the second cancer. However, a recent study using the Surveillance, Epidemiology, and End Results (SEER) program (1973-2002) found that mortality from second cancers following testicular cancer was similar to matched first cancers.

Schairer C, Hisada M, Chen BE, et al. Comparative mortality for 621 second cancers in 29356 testicular cancer survivors and 12420 matched first cancers. *J Natl Cancer Inst.* 2007;99:1248-1256.

Available at: <http://www.medscape.com/viewarticle/563833>. Accessed March 18, 2008.





The most common cause of a discrete palpable breast mass is a benign cyst.

**All of the following characteristics are suggestive of a benign cyst EXCEPT:**

- A. They commonly occur in the fourth decade (perimenopause)
- B. They are less common in postmenopausal women not on hormone therapy (HT)
- C. They are commonly located in upper outer quadrants and are well circumscribed, firm, rubbery, exceedingly mobile, and nontender
- D. Ultrasound or fine-needle aspiration can distinguish solid from cystic lesions

# A

**C. They are commonly located in upper outer quadrants and are well circumscribed, firm, rubbery, exceedingly mobile, and nontender.**

## **Breast cysts**

- commonly occur in the fourth decade (perimenopause);
- may fluctuate with the menstrual cycle;
- are usually round or oval, well circumscribed, smooth, firm, and mobile;
- often have focal tenderness immediately over the site;
- can be hard if fluid is under tension;
- must be evaluated by ultrasound or fine-needle aspiration to distinguish solid from cystic lesions; and
- are less common in postmenopausal women not on HT.

## **By contrast, fibroadenomas**

- commonly occur in young women during the first half of the reproductive period;
- are stimulated to grow by exogenous estrogen or progestin, lactation, and pregnancy;
- typically are located in upper outer quadrants, are well circumscribed, firm, rubbery, exceedingly mobile, and nontender; and
- usually have a characteristic ultrasonographic appearance.

Dunn N. Breast cancer module III: workup of abnormal clinical findings. Medscape Hematology-Oncology. May 31, 2007. Available at: <http://www.medscape.com/viewprogram/6341>. Accessed March 18, 2008.



Which of the following chemopreventive agents has been shown to lower prostate cancer occurrence?

- A. Finasteride
- B. Lycopene
- C. Selenium
- D. All of the above

# A

## A. Finasteride.

The Prostate Cancer Prevention Trial (PCPT) was the first prospective chemoprevention trial of finasteride to demonstrate a reduction in the primary outcome of prostate cancer, although the risk for high-grade tumors was elevated. Intake of foods high in vitamin E, lycopene, or selenium has also been associated with lower prostate cancer risk in epidemiologic and retrospective studies. Data from nested case-control studies indicate that a beneficial effect from beta-carotene and selenium may be restricted to men with low baseline plasma levels. Although some of the data seem promising, at this point it is premature to recommend nutritional intervention as a way to prevent prostate cancer.

Lowe JF, Frazee LA. Update on prostate cancer chemoprevention. *Pharmacotherapy*. 2006;26:353-359. Available at: [http://www.medscape.com/viewarticle/529169\\_1](http://www.medscape.com/viewarticle/529169_1). Accessed March 18, 2008.



Before tyrosine kinase inhibitors came on the market, the 2-year survival rate for patients with high-risk primary gastrointestinal stromal tumors (GIST) was approximately 50%.

**Is the following statement true or false? The tyrosine kinase inhibitor imatinib mesylate can significantly prolong survival in patients with GIST in both the metastatic and adjuvant setting.**

- A. True
- B. False

# A

## A. True.

Imatinib received FDA approval for treatment of malignant metastatic or unresectable GISTs and has proven to be beneficial in more than 80% of patients with metastatic GIST. In a phase 3, randomized, double-blind study of adjuvant imatinib vs placebo for patients after resection of primary GIST, accrual to the trial was halted early based on the results of a planned interim analysis. Those who received imatinib had a significantly lower risk for recurrence — 1-year recurrence-free survival rate was 97%, compared with a rate of 83% in the placebo group. Another study was a phase 2, single-cohort, open-label, multicenter trial in which patients received adjuvant imatinib. The overall survival rates were 99% at 1 year, 97% at 2 years, and 97% at 3 years. Although this study had no control group, the investigators believe that imatinib improved overall survival compared with historic controls.

Nelson R. Adjuvant imatinib improves survival in patients with GIST. Medscape Medical News. February 5, 2008. Available at: <http://www.medscape.com/viewarticle/569731>. Accessed March 18, 2008.