Breast Cancer: Age-related Factors

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*Your answer sheet for this Directed Reading must be received in the ASRT office on or before this date.

Read the preceding Directed Reading and choose the answer that is most correct based on the article.

1. The median age of a woman diagnosed with breast cancer is ______ years.
   a. 31
   b. 41
   c. 51
   d. 61

2. ______ has/have not been well defined for study of women with breast cancer.
   a. Premenopausal status
   b. Genetic factors
   c. Age categories
   d. Breast density

3. Which of the following statements is true regarding breast cancer in young women?
   a. Women younger than 50 years account for about one-third of invasive breast cancers.
   b. Nearly one-third of all breast cancers are diagnosed in women younger than 35 years.
   c. Invasive breast cancer incidence has risen in young women in recent years.
   d. Mortality from breast cancer is 4-fold higher in young women than among older women.

4. Transformation is the point when:
   a. breast lobules form.
   b. breast tissue changes from dense to fatty.
   c. breast tissue changes from normal to cancerous.
   d. milk secretion begins.

5. A woman’s breasts reach maximum development during:
   a. puberty.
   b. pregnancy.
   c. menopause.
   d. postmenopause.

6. A woman who delivers her first child before she is 20 years old has a ______ % lower risk of breast cancer than a woman who never has delivered a child.
   a. 20
   b. 30
   c. 40
   d. 50

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7. Age-related lobular involution is the:
   a. physiologic atrophy of breasts.
   b. increase in dense breast tissue by the age of 70.
   c. benign breast disease represented by inverted nipples.
   d. condition associated with reduced number of cells with estrogen receptors.

8. Premenopausal women who have early menopause brought on by hysterectomy or bilateral oophorectomy are more likely to have higher breast densities than women who had natural early menopause.
   a. true
   b. false

9. Breast tissue that is 51% to 75% fibroglandular is considered:
   a. almost entirely fat.
   b. scattered fibroglandular densities.
   c. heterogeneously dense.
   d. extremely dense.

10. Which of the following is true about breast density and age, according to the American College of Radiology Imaging Network 6666 trial?
    1. More than half of women aged younger than 50 years in the trial had dense breast tissue.
    2. One-third of women older than 50 years of age in the trial had dense breast tissue.
    3. There was no correlation between breast density and age.
    a. 1 and 2
    b. 1 and 3
    c. 2 and 3
    d. 1, 2, and 3

11. Mammograms of dense breasts are less sensitive because of:
    a. lack of radiographer training, especially in digital technique.
    b. poor radiologist interpretation skills.
    c. x-ray beam attenuation.
    d. inadequate compression.

12. Which of the following is true regarding breast tumor characteristics in women?
    1. Tumor growth is faster in women aged 40 to 49 years than in women aged 50 to 69 years.
    2. Breast cancers in women younger than 35 years are higher grade at diagnosis than those of older women.
    3. Breast cancers in women younger than 35 years have more vascular invasion than those of older women.
    a. 1 and 2
    b. 1 and 3
    c. 2 and 3
    d. 1, 2, and 3

13. Prolonged ______ exposure is 1 of the greatest risk factors for breast cancer development, and explains the increasing odds of breast cancer as women age.
    a. progestin
    b. estrogen
    c. cigarette smoking
    d. breastfeeding

14. About half of elderly women with breast cancer die from:
    a. metastatic lung cancer.
    b. metastatic brain cancer.
    c. treatment toxicities or side effects.
    d. causes not related to their breast cancers.
15. Although screening mammography has proven to be effective in women aged 50 to 59 years, evidence is less clear regarding its effectiveness in women aged ______ years.
   a. 30 to 39
   b. 40 to 49
   c. 60 to 69
   d. 70 to 79

16. As of August 1, 2011, nearly ______ % of the mammography units in the United States were digital units.
   a. 50
   b. 60
   c. 80
   d. 90

17. The American Cancer Society (ACS) has recommended that older women have screening mammograms:
   a. every 2 to 3 years as long as they have a life expectancy of at least 4 years.
   b. annually as long as they are in good health.
   c. annually through age 75 years if they have a life expectancy of at least 5 years.
   d. only until age 74.

18. The average life expectancy for women aged 70 years in 2005 was an additional ______ years.
   a. 5.6
   b. 10.6
   c. 15.6
   d. 20.6

19. In a study by Gierisch et al of mammography maintenance, women aged ______ years were least likely to maintain adherence to annual screening recommendations.
   a. 40 to 49
   b. 50 to 59
   c. 60 to 69
   d. 70 to 79

20. High expressions of the genetic marker p16 in a gene signature could indicate that a person has a:
   a. high number of white cells.
   b. high number of kidney cells.
   c. better ability to tolerate chemotherapy than biological age would indicate.
   d. lesser likelihood of tolerating chemotherapy.

21. Which of the following surgical options are open for breast cancer treatment for older women with life expectancies greater than 5 years?
   1. breast-conserving surgery
   2. mastectomy
   3. breast reconstruction
   a. 1 and 2
   b. 1 and 3
   c. 2 and 3
   d. 1, 2, and 3

22. Breast cancer treatment in younger women can cause ______ , meaning many younger women should be screened for ______ .
   a. early menopause; osteoporosis
   b. early menopause; cataracts
   c. late menopause; uterine cancer
   d. late menopause; glaucoma

23. Older breast cancer survivors are at higher risk than younger survivors of local recurrence and having a second primary cancer diagnosed.
   a. true
   b. false

24. The ______ the women are at the time they receive their breast cancer diagnosis, the ______ likely breast cancer will be the cause of their death.
   a. younger; more
   b. younger; less
   c. older; more
   d. older; less

continued on next page
25. Women aged 60 years and younger with early-stage breast cancer have reported anxiety levels twice those of their peers without breast cancer during the first year following their diagnoses.
   a. true
   b. false

26. A Swedish study showed a negative association between the use of ______ to treat breast cancer and return to work at the 3-year mark, but not at 5 years following diagnosis.
   a. radiation therapy
   b. adjuvant chemotherapy
   c. lumpectomy
   d. hormone therapy

27. Studies have shown that more than ______ % of mammographically occult lesions have occurred in women with heterogeneously or extremely dense breasts.
   a. 25
   b. 45
   c. 65
   d. 75

28. Screening mammography can help reduce mortality for women:
   a. aged 40 to 49 years only.
   b. aged 50 to 59 years only.
   c. aged 60 to 69 years only.
   d. in every age group.

29. Older patients might have trouble standing or assisting with mammography positioning because of normal age-related:
   1. dizziness.
   2. loss of strength.
   3. shift in center of gravity from hips to upper torso.
   a. 1 and 2
   b. 1 and 3
   c. 2 and 3
   d. 1, 2, and 3

30. The ACS recommends an annual mammogram and ______ examination for women with more than a 20% lifetime risk of breast cancer, typically beginning at ______ years of age.
   a. ultrasonography; 30
   b. ultrasonography; 40
   c. magnetic resonance; 30
   d. magnetic resonance; 40
Directed Reading Evaluation
Breast Cancer: Age-related Factors

1. What is your primary area of practice?
- ○ Administration/Management
- ○ Education
- ○ Quality Management
- ○ RIS/HIS/Information Systems
- ○ Bone Densitometry
- ○ Magnetic Resonance
- ○ Radiation Therapy
- ○ RN
- ○ Cardiovascular-Interventional
- ○ Mammography
- ○ Radiography
- ○ Sonography
- ○ Computed Tomography
- ○ Nuclear Medicine
- ○ Research
- ○ Other

2. Which of the following best describes the highest educational level you have attained?
- ○ Student who has not yet taken Registry exam
- ○ Associate degree
- ○ Master's degree
- ○ Certificate
- ○ Bachelor's degree
- ○ Doctoral degree (e.g., Ph.D. or Ed.D.)

3. Why did you choose to complete this DR?
- ○ Interested in the topic
- ○ Topic pertained to my area of practice
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4. How relevant is this DR to your practice?
- ○ Extremely relevant
- ○ Very relevant
- ○ Relevant
- ○ Somewhat relevant
- ○ Not relevant

5. How beneficial is this DR to your professional or personal development?
- ○ Extremely beneficial
- ○ Very beneficial
- ○ Beneficial
- ○ Somewhat beneficial
- ○ Not beneficial

6. How would you rate the level of difficulty of this DR?
- ○ Too difficult
- ○ Somewhat difficult
- ○ Just the right level
- ○ Somewhat easy
- ○ Too easy

7. How would you rate the length of this DR?
- ○ Too long
- ○ Somewhat long
- ○ Just the right length
- ○ Somewhat short
- ○ Too short

8. Did this DR meet your expectations?
- ○ Yes
- ○ No
- ○ Partially

9. Would you recommend this DR to a colleague?
- ○ Yes
- ○ No

10. Overall, how valuable are the Directed Readings to you?
- ○ Very valuable
- ○ Considerably valuable
- ○ Valuable
- ○ Slightly valuable
- ○ Not very valuable

If you have comments about this Directed Reading, please write them below or send them separately to Ellen Lipman, Director of Professional Development, ASRT, 15000 Central Ave SE, Albuquerque, NM 87123-3909 or elipman@asrt.org.
Breast Cancer: Age-related Factors

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Note: For true/false questions, A=true, B=false.

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2 ○ ○ ○ ○ 12 ○ ○ ○ ○ 22 ○ ○ ○ ○
3 ○ ○ ○ ○ 13 ○ ○ ○ ○ 23 ○ ○ ○ ○
4 ○ ○ ○ ○ 14 ○ ○ ○ ○ 24 ○ ○ ○ ○
5 ○ ○ ○ ○ 15 ○ ○ ○ ○ 25 ○ ○ ○ ○
6 ○ ○ ○ ○ 16 ○ ○ ○ ○ 26 ○ ○ ○ ○
7 ○ ○ ○ ○ 17 ○ ○ ○ ○ 27 ○ ○ ○ ○
8 ○ ○ ○ ○ 18 ○ ○ ○ ○ 28 ○ ○ ○ ○
9 ○ ○ ○ ○ 19 ○ ○ ○ ○ 29 ○ ○ ○ ○
10 ○ ○ ○ ○ 20 ○ ○ ○ ○ 30 ○ ○ ○ ○

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Indicators of Systemic Disease on Mammography

1. In which type of arteries do medial calcifications tend to develop?
   a. coronary arteries only
   b. large arteries
   c. large to mid-sized arteries
   d. small to mid-sized arteries

2. Arterial calcifications within the breast often are described as having a ______ appearance.
   a. starburst
   b. beaded
   c. railroad track
   d. road map

3. Breast arterial calcifications are more common in women who smoke.
   a. true
   b. false

4. Although death rates because of cardiovascular disease dropped more than 30% between 1998 and 2008, it still accounts for 1 in ______ deaths in the United States.
   a. 2
   b. 3
   c. 4
   d. 5

5. In the study by Zgheib et al, the presence of breast arterial calcifications was associated with which of the following risk factors for heart disease?
   a. obesity and smoking
   b. high cholesterol and sedentary lifestyle
   c. personal or family history of coronary heart disease (CHD) and “CHD-equivalent disease”
   d. diabetes and stress
6. According to the study by Zgheib et al, the severity of breast arterial calcifications, as reflected by the number of affected breast quadrants and vessels and the maximum length of calcifications, was ________ CHD.
   a. a significant predictor of
   b. not a significant predictor of
   c. positively associated with
   d. negatively associated with

7. In Akinola et al’s 2011 study of breast arterial calcifications in Nigerian women, the prevalence was ________ in studies involving mostly white women.
   a. the same as
   b. much lower than
   c. slightly lower than
   d. higher than

8. In the study by Schnatz et al, which of the following was the greatest risk factor for developing CHD within 5 years?
   a. breast arterial calcifications
   b. hypertension
   c. diabetes
   d. having a family history of the disease

9. In the study by Iribarren and colleagues, the highest increased risk associated with breast arterial calcifications was for:
   a. CHD.
   b. ischemic stroke.
   c. heart failure.
   d. peripheral vascular disease.

10. In a study by Dale et al, the prevalence of breast arterial calcifications in a group of women with diabetes was more than ________ %.
    a. 16
    b. 26
    c. 36
    d. 46

11. What are the 2 main causes of kidney disease?
    a. polycystic kidney disease and traumatic injury
    b. high blood pressure and glomerulonephritis
    c. diabetes and high blood pressure
    d. diabetes and polycystic kidney disease

12. In the United States, ________ % of women aged 50 years and older have osteoporosis of the hip.
    a. 5
    b. 10
    c. 15
    d. 20

13. In their study of breast arterial calcification and osteoporosis, Reddy et al found that the 2 conditions were:
    a. strongly and independently correlated.
    b. weakly correlated.
    c. not correlated.
    d. less correlated than breast arterial calcification and kidney disease.

14. Which of the following lymph node characteristics is not associated with disease?
    a. diameter greater than 2 cm
    b. round or kidney-shaped
    c. opaque
    d. poorly circumscribed margins

15. *Toxoplasma gondii* infection is transmitted:
    1. through improper handling of cat litter.
    2. by eating undercooked meat.
    3. via droplets in coughs and sneezes.
    a. 1 and 2
    b. 1 and 3
    c. 2 and 3
    d. 1, 2, and 3

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16. Among patients who are found to have axillary lymphadenopathy, the most common diagnosis is metastatic breast cancer.
   a. true
   b. false

17. Breast tissue is ______ to secondary tuberculosis infection.
   a. immune
   b. comparatively resistant
   c. as susceptible as lung tissue
   d. highly vulnerable

18. A study by Tewari et al found that most women with tuberculosis of the breast are aged ______ years.
   a. 20 to 40
   b. 40 to 60
   c. 50 to 65
   d. 65 to 80

19. Which of the following was not mentioned in this article as a possible cause of Mondor disease?
   a. breast surgery
   b. radiation therapy treatment
   c. infection
   d. muscle strain

20. According to a study by Shetty and Watson, on ultrasonography, Mondor disease appears as:
   a. long, tubular, echogenic structures.
   b. long, tubular, anechoic structures.
   c. round, echogenic structures.
   d. round, anechoic structures.

21. The most common cause of Mondor disease according to the study by Catania et al is:
   a. unknown.
   b. breast cancer.
   c. surgical trauma.
   d. accidental trauma.

22. Edema of the breast is associated with:
   1. inflammatory breast cancer.
   2. congestive heart failure.
   3. Churg-Strauss syndrome.
   a. 1 and 2
   b. 1 and 3
   c. 2 and 3
   d. 1, 2, and 3

23. Women with Turner syndrome are more likely to develop which of the following?
   a. type II diabetes
   b. vitamin D deficiency
   c. breast cancer
   d. toxoplasmosis

24. According to Cao et al, which type of cancer is more likely to metastasize to the breast?
   a. bone cancer
   b. leukemia
   c. melanoma
   d. liver cancer

25. Masses associated with diabetic mastopathy appear regular, round, and well-circumscribed on mammography.
   a. true
   b. false

26. Sarcoidosis sometimes is described as an enigmatic disease for which of the following reasons?
   1. The cause is still unknown.
   2. Diagnosis is challenging.
   3. Prognosis is highly variable.
   a. 1 and 2
   b. 1 and 3
   c. 2 and 3
   d. 1, 2, and 3
27. Which of the following are thought to be possible triggers for developing sarcoidosis?
   
   1. an infectious agent  
   2. an environmental factor  
   3. genetic susceptibility  

   a. 1 and 2  
   b. 1 and 3  
   c. 2 and 3  
   d. 1, 2, and 3

28. Granulomas of the breast caused by sarcoidosis typically are treated with:
   
   a. antibiotics.  
   b. antiprotozoals.  
   c. radiation therapy.  
   d. excisional biopsy.

29. How might amyloidosis appear on mammography?
   
   1. clustered microcalcifications  
   2. suspicious for cancer  
   3. asymmetric densities  

   a. 1 and 2  
   b. 1 and 3  
   c. 2 and 3  
   d. 1, 2, and 3

30. Which of the following was not mentioned in this article as a possible sign or symptom of lupus mastitis?
   
   a. nipple discharge  
   b. breast atrophy  
   c. fat necrosis  
   d. axillary lymphadenopathy
Directed Reading Evaluation
Indicators of Systemic Disease

Thank you for taking the time to complete this evaluation. Your opinion helps us serve you better. Your comments will remain confidential and will not affect the scoring of your Directed Reading (DR) test. Choose only ONE response for each question. Use a blue or black ink pen. Do not use felt tip markers. Completely fill in the circles.

1. Why did you choose to complete this DR?
   ○ Interested in the topic  ○ Topic pertained to my area of practice
   ○ Needed CE credits immediately  ○ Other

2. How relevant is this DR to your practice?
   ○ Very relevant  ○ Relevant  ○ Somewhat relevant  ○ Not relevant

3. How beneficial is this DR to your professional or personal development?
   ○ Very beneficial  ○ Beneficial  ○ Somewhat beneficial  ○ Not beneficial

4. How would you rate the level of difficulty of this DR?
   ○ Too difficult  ○ Somewhat difficult  ○ Just the right level  ○ Somewhat easy  ○ Too easy

5. How would you rate the length of this DR?
   ○ Too long  ○ Somewhat long  ○ Just the right length  ○ Somewhat short  ○ Too short

6. Did this DR meet your expectations?
   ○ Yes  ○ Partially  ○ No

7. Would you recommend this DR to a colleague?
   ○ Yes  ○ No

8. Overall, how valuable are the DRs to you?
   ○ Very valuable  ○ Valuable  ○ Somewhat valuable  ○ Not very valuable

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Indicators of Systemic Disease on Mammography

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7 ● ○ ○ ○ ○ 17 ○ ● ○ ○ ○ ○ ○ ○ ○
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