Self-Assessment Test

Choose the one correct answer for each of the following questions:

1. Dr. Herberman introduced the term "lead time" referring to that value of a tumor marker which relates to:

   a. the delay between discovery and FDA approval.

   b. the time from venipuncture until the test must be completed.

   c. the interval between appearance of a positive tumor marker test and the time of clinical detection.

   d. the period between discovery of a positive tumor marker test and the performance of curative surgery.

2. According to Dr. Herberman, valuable clinical applications of diagnostic tests for cancer include all of the following EXCEPT:

   a. avoiding liability claims for missed diagnoses.

   b. simpler and less expensive diagnosis.

   c. detection of early (curable) cancer.

   d. detection of residual or recurrent cancer.

   e. aid in determining duration and extent of therapy.

3. Dr. Rose described problems related to the development of tumor markers because of antigen properties including all of the following EXCEPT:

   a. Antigens are not tumor specific.

   b. Technical difficulties hamper test development.

   c. Cross-reactivity confuses the results.

   d. Antigens may be expressed in nonmalignant diseases or by unrelated malignancies.

   e. The FDA considers antigen markers obsolete.

4. The Predictive Value of a Positive test:

   (1) is highly influenced by the prevalence of the disease in the test population.

   (2) is a complement of the Predictive Value of a Negative test, so that the two always sum to 1.000.

   (3) is defined as the proportion of individuals with the disease among all those with a positive test.

   (4) can be calculated from three test factors: sensitivity, specificity, and prevalence.

   (5) falls with increasing disease prevalence in the test population.

   Concerning the five statements above, choose the one correctanswer below:

   a. All five of the statements are true.

   b. Only (1), (2), and (3) are true.

   c. Only (1), (3), and (4) are true.

   d. Only (4) and (5) are true.

   e. None of the statements are true.

5. When screening a population with a disease prevalence of 2% using a test with 95% sensitivity and 95% specificity, the proportion of individuals with a positive test who actually have the disease:

   a. will be about one out of four.

   b. cannot be determined with only these data.

   c. depends entirely upon what disease is being tested for.

   d. approaches 100% because the test is so accurate.

6. When expressing the reliability of a test, if sensitivity and prevalence of disease are fixed, then increasing the specificity of a test results in:

   a. more false positive tests.

   b. no change in the proportion of false positive tests.

   c. making Bayes Theorem inapplicable to the analysis.

   d. improved Predictive Value of Positive tests.

7. According to Dr. Bates the half-life of a tumor marker:

   a. gives some indication of the relative aggressiveness of the tumor from which it arises.

   b. is one determinant of its value in monitoring therapy.

   c. is important only in determining how quickly the specimen must arrive at the laboratory for analysis.

   d. makes beta-HCG a relatively slow indicator of successful tumor excision.

8. A rise in tumor marker level while a patient seems to be improving, illustrated by CEA level, was called by Dr. Fritsche:

   a. pseudo-tumor response.

   b. paradoxical increase.

   c. chemotherapy rebound.

   d. Hobson's choice.

9. According to Dr. Fritsche, tumor markers currently available in many clinical laboratories are useful in all the following applications EXCEPT:

   a. monitoring results of therapy.

   b. assessing tumor burden, as part of staging the tumor.

   c. differentiating highly aggressive cell strains from more slow-growing types.

   d. followup for evidence of recurrence.

10. American Cancer Society recommendations for cancer screening in 1992 include stool occult blood tests, digital rectal examinations, breast examinations, etc, and how many serum tumor markers?

    a. None.

    b. Two for men (PSA and beta-HCG) and one for women (CA125).

    c. Only CEA and PSA (for men over 50 years of age).

    d. A screening tumor marker, followed by a panel of specific markers if it is positive.

11. According to Dr. Swanson, widespread usage of tumor markers should probably await all of the following EXCEPT:

    a. consensus of clinical and research scientists concerning their use.

    b. independent and adequate verification with research results published in peer-reviewed science journals.

    c. proficiency testing in place.

    d. prices fall to reasonable levels.

12. The formal definition of "screening", according to Dr. Schwartz' quotation, is:

    a. simultaneous application of a single test to a large number of specimens.

    b. the presumptive identification of unrecognized disease or defect by the application of tests, examinations, or other procedures that can be applied rapidly.

    c. identical to "case-finding".

    d. applied only to high risk populations.