Questions and Answers

1. A 75-year-old male in good health is being evaluated for elective hernia repair. He is not on any medications. In addition to the history and examination, you wish to order laboratory tests. Which one of the following choices would be the most appropriate choice in this setting?
A. Hemoglobin, hematocrit, glucose, creatinine, blood urea nitrogen (BUN), electrolytes
B. Hemoglobin, hematocrit, glucose, creatinine, BUN, electrolytes, prothrombin time, International Normalized Ratio (INR), and liver function
C. Hemoglobin, hematocrit, creatinine, glucose, BUN, electrolytes, prothrombin time, INR, and prostate-specific antigen
D. Hemoglobin, hematocrit, creatinine, HbA1c, BUN, electrolytes, and urinalysis

Answer: A

Ordering a large number of tests does not improve the safety of the surgical procedure; the best choice would be to base test selection on the history and examination. In this case, the patient is in good health, further substantiated by the fact that he is not on medications; the choice here would be to obtain the minimal tests required to ascertain the absence of common problems in older adults. Obtaining bleeding and clotting tests would be dependent on a history of bleeding, clotting or liver disease, and medication history (anticoagulants, aspirin, NSAIDs). Prostate-specific antigen has no role prior to surgery and in fact requires a discussion regarding its risks and benefits with the patient prior to being ordered. Urinalysis has no routine role prior to surgery outside the urinary tract. Random glucose levels and the history should provide suspicion for diabetes, rather than obtaining a HbA1c screen at this stage.

2. In order to minimize legal concerns, which one of the following strategies is most helpful?
A. Order the number of tests indicated, tailored to history and examination; review and initial the results, and take action for those values where indicated
B. The more the tests ordered, the lower is the risk. The odds are you are likely to have covered apparent and nonapparent illness
C. When the results are available, have the office staff review them and place the results in the chart
D. Review the laboratory results and attempt to memorize the general picture; at the next patient visit, document the abnormal results along with visit

Answer: A

Is there an increase in liability for requesting or not requesting a test?

Legal concerns are one reason for providers to request routine laboratory tests. Although there may be legal risk for failure to order a test and make a diagnosis in the first place, the risk may be even greater for ordering a laboratory test and not following up in a timely fashion with required actions based on the abnormal results. Laboratory test results must be acknowledged, and reports initialed by the provider. Documentation must include both negative and positive findings; critical test results warrant immediate action and rapid communication to the patient, along with documentation and actions taken. In summary, it is most desirable that the provider who orders a test follows up with the test results quickly and appropriately.

3. Regarding hemoglobin and hematocrit testing in the geriatric population, which one of the following statements is not true?
A. Anemia is common in the older age group; hemoglobin testing is an inexpensive and simple option to detect anemia, although it does not delineate an etiology
4. Seventy-year-old woman with atrial fibrillation comes to you with ecchymoses over his extremities and bleeding on brushing the gums. He is on warfarin. Laboratory testing reveals hemoglobin to be 10 g/dL and the INR of 4.0 (target 2.5). All of the following considerations would account for the increase in INR, except:

A. Possible excessive consumption of alcohol with impact on liver function; testing is indicated for liver function, platelet counts, and folic acid assay
B. An enquiry on herbs and supplements intake is indicated; consideration includes ginger, garlic, and ginkgo biloba
C. The high INR is an error; repeat testing is the next step prior to any actions, as the value was at target a month ago
D. The patient may have begun to consume grapefruit juice recently

Answer: D

Warfarin is an anticoagulant known to be associated with adverse effects, arising in large part due to drug–drug or drug–disease interactions. Herbals are well known to cause bleeding through interaction with warfarin; ginger, garlic, ginkgo biloba, and saw palmetto increase the INR, while ginseng lowers the INR. Grapefruit juice inhibits the CYP system in the gut but does not impact warfarin pharmacokinetics. In general, routine repeat testing of critical values of hemoglobin, platelet count, white blood cell count, prothrombin time or INR and activated partial thromboplastin time do not offer advantage over a single run; while one may repeat the test, any action for a critical value is best taken immediately. In this case the INR of 4 is already associated with bleeding and taken in context is cause and effect. Alcohol consumption (whether apparent or not) is a consideration with unexplained abnormal liver function tests (LFTs) or with other signs such as unexplained macrocytosis.

5. Regarding LFTs, which one of the following is not true?
A. LFTs are a panel of tests and not true tests of liver function; abnormalities may reflect disease
B. Medication-induced abnormalities are extremely common in the geriatric population
C. Abnormal liver function in an asymptomatic patient is uncommon; when they occur an exhaustive evaluation is indicated
D. Nonalcoholic fatty liver disease may be the most common cause of abnormal liver function, especially in the affluent society

Answer: C

LFTs include a panel of tests, but per se are not reflective of liver function; included are liver enzymes, bilirubin, and hepatic synthetic measures (prothrombin time and albumin). About 1–4% of asymptomatic patients manifest abnormal tests, with results influenced by a host of factors, including gender, ethnicity, illness (e.g., metabolic syndrome, nonalcoholic fatty liver disease), medications, over-the-counter drugs and supplements, and alcohol. Nonalcoholic fatty liver disease is a common cause of abnormal AST and ALT worldwide, especially in affluent nations, increasing with the growing obesity epidemic. A focused history and physical examination are a foundation for appropriate testing. The value of serum albumin levels is immense; levels reflect not only nutritional status, but also relate to renal and hepatic function. Abnormal LFTs are commonly encountered in asymptomatic patients during routine visits; a cost-effective and systematic approach is recommended for their interpretation, with consultations in select cases.