

### **Serum digoxin concentration**

Several recent studies have highlighted the benefit of digoxin in the treatment of congestive heart failure. Monitoring of serum digoxin concentration is therefore important to reduce toxicity. In a recent study, Marik and Froma (*Am J Med* 1998;105:110-115) reviewed the case notes of all patients with an elevated serum digoxin concentration ( $> 2.4$  g/l) during a 6-month period in order to identify risk factors for the development of high serum digoxin concentration. Eight percent of patients (115 out of 1433) had elevated serum digoxin concentrations. Of these, 87 patients had complete records and correctly timed digoxin measurements and 63 of these patients had clinical features of digoxin toxicity. Patients with high serum digoxin concentration were older or had higher serum creatinine concentration. Risk factors for the development of digoxin toxicity were: age, poor renal function, and low body weight. The authors concluded that digoxin toxicity is common and precautions should be taken to reduce these by adjusting the dosage regularly.

### **Appropriate use of laboratory tests**

Use of laboratory tests varies widely between physicians without any apparent effect on the quality of care. Such variations suggest that tests may not be used appropriately. Some of the overuse of laboratory tests is due to frequent repeat testing. Thus a test that changes slowly with time can be considered a redundant test if it is requested within a shorter time. Bates et al (*Am J Med* 1998;104:361-368) report on a retrospective study of 6000 patients in a large teaching hospital and identified the proportion of commonly performed tests that were redundant. Of the 78,798 tests performed, 22,237 (28%) were

repeated earlier than the predefined interval. The proportion of repeat tests was highest for serum digoxin (62%) and chest radiography (52%), and lowest for routine clinical chemistry tests (3%). Of the repeat tests, 42% of repeated tests followed an initial normal result. Based on the changes between the two tests and on changes in clinical management as a result of the test, 40% of the repeat tests were judged to be redundant and could be potentially eliminated. Based on 1991 prices, the potential savings were estimated to be US\$930,000. Arterial blood gases, routine cultures, and digoxin measures accounted for 89% of the projected savings.

### **Biologic variation in markers of alcoholism**

Biologic variation (intra- and interindividual variation) is an important consideration in deciding analytic methods, reference range, and cut off value. Helander et al (*Clin Chem* 1998;44:2120-2125) have determined intra- and interindividual variability of carbohydrate-deficient transferrin (CDT), gamma glutamyl transferase (GGT), and mean corpuscular volume (MCV)—all markers used in the detection of excess alcohol consumption. Blood was collected once every one to two weeks over five months from 14 healthy teetotallers for analysis of these markers. The results showed that there was considerable variation in the baseline values of CDT, GGT, and MCV between subjects. Serum GGT activity showed the highest intraindividual variation (13.8%) followed by CDT (7.5%). Some baseline values were outside the reference intervals.

The authors recommend that monitoring of alcohol-dependent subjects is best done by following changes in the markers relative to baseline and abstinence values rather than using population-based reference intervals.

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