and serum in untreated patients with CD, we found a good correlation ($P < 0.01$) between serum and fecal concentrations of AGA IgA. Because fecal AGA IgA concentrations reflect the secretion of these antibodies by the whole digestive tract, our results suggest a pathophysiological relation between serum and fecal AGA IgA. Moreover, the emergence of fecal AGA IgA in some patients might precede that of serum AGA IgA during the onset of CD, because three subjects with CD had AGA IgA but normal serum AGA IgA. Gliadin, an antigen found in food, could stimulate intestinal immunity and give rise to detectable fecal AGA IgA even when serum concentrations are zero, either because of inadequate assay sensitivity or because of an absence of AGA IgA.

Combined assay of serum and fecal AGA IgA could prove to be a more precise and thorough means of studying systemic and intestinal humoral immune responses in celiac disease.

References


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Strength of the Signal, Analytical Variability, and Predictive Value of Test Results

To the Editor:

The Bayesian approach, popularized by Galen and Gambino (1), is valuable for assessing diagnostic tests and managing laboratory reports. This approach is of particular importance in judging the reliability of indications of the presence (D) or absence ($\bar{D}$) of disease provided by a test result. In the most general (and most frequently adopted) formulation of Bayes' theorem, numerical estimates reduce to a binary classification (yes—no, positive—negative), thus sacrificing to the mod-
An example of the proposed approach is given in Figure 1 relative to the results obtained in a multicenter study of 401 euthyroid subjects (EU) and 205 hyperthyroid patients (HYPER). In this study (9), free thyroxine (FT$_4$) in serum was measured by means of the SimulTRAC FT$_4$/TSH kit (Becton Dickinson, Orangeburg, NY) (9). The prevalences observed in the Hospital of Pisa, Nuclear Medicine Department, were adopted in the data treatment (90% EU, 10% HYPER). In Figure 1, the total variability in the measurement range is described by the between-laboratory imprecision profile, and the distributions of test values are represented by best-fitting functions (gaussian for EU, log-normal for HYPER). The resulting $R$ curve is compared with that obtained from the heights hD and hR of the overlapping distributions ($r$ curve, corresponding to zero analytical variability).

To avoid excessive graphical complications in illustrating the basic procedure, we have not indicated the uncertainty region around the $R$ curve in Figure 1. Examples of variability ranges ($P < 0.05$), as obtained in correspondence with FT$_4$ estimates with the bootstrap, are as follows: 19 ng/L, $R = 0.13$, range 0.09–0.17; 21 ng/L, $R = 0.47$, range 0.38–0.56; 23 ng/L, $R = 0.96$, range 0.92–1.00.

The differences between the two series of data of Figure 1c clearly demonstrate that the measurement error cannot be ignored, and that the analysis cannot be limited to the overlap region, as suggested by Keller and Gessner (3). The merits mentioned by van der Helm and Hische (2) concerning likelihood ratios hold valid, particularly in providing evidence for the diagnostic implications of laboratory reports.

References


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Measurement of Creatinine in Urine Screening for Drugs of Abuse

To the Editor:

Screening urine samples for drugs of abuse is an important part of the management of drug misusers, and the assays are now performed in many hospital laboratories. One of the problems associated with these assays is the deliberate adulteration or dilution of samples by patients in an attempt to influence laboratory results. To avoid detection of drugs, patients may dilute urine samples with water, or drink large volumes of fluid before providing a sample.

Lafolie et al. (1) suggested that the concentration of creatinine should be measured in all urine samples for drug screening, and if the creatinine concentration is <4 mmol/L, negative results for drugs may not be valid. Alternatively, Watson (2) suggested that for buprenorphine assays, a drug/creatinine ratio should be calculated.

Because of the additional work involved and the cost of analyses, we investigated the possibility of measuring creatinine in urine only if urine specimens appeared to be dilute. We compared urine specimens classified as normal (distinct color—more highly colored than 0.1 g/L solution of potassium dichromate), dilute (pale straw color), or very dilute (colorless—water-like in appearance), by visual inspection, with the measured urine creatinine concentration. In this study, 516 urine samples were analyzed; samples were from 471 patients who were at-