



Celiac Disease Testing

SYNOPSIS AND RELEVANCE

Serologic testing for Celiac Disease (CD) is complicated by the availability of multiple assays. Utilization of a standardized testing algorithm will:

1. Allow appropriate selection of primary testing.
2. Ensure appropriate secondary testing, if required.
3. Impact patient care by efficiently identifying patients with CD, thereby facilitating appropriate treatment.

INSIGHTS

1. An algorithmic (reflex) approach to CD testing offers the best strategy to ensure optimal utilization.
2. Avoid use of non-deamidated gliadin peptide antibody testing due to lack of sensitivity and specificity.
3. Due to its low positive predictive value, human leukocyte antigen (HLA) testing should not be used for routine testing and should be restricted to very narrowly defined clinical situations.
4. While many potential testing strategies are in use in various institutions, most avoid using anti-endomysial antibodies as a primary test for CD.

BACKGROUND

CD affects an estimated 1% of the US population and is being diagnosed with increasing frequency due at least in part to increased awareness by the public and caregivers.¹ However, many experts believe there is still substantial under-diagnosis. Patients with CD experience excess morbidity and mortality compared to the general population.² Because CD is highly treatable, there are compelling reasons to render accurate and timely diagnoses. The diagnosis of CD is complicated by the fact that the disease is asymptomatic in some patients and leads to protean manifestations in others (gastrointestinal, neurologic, dermatologic, psychiatric symptoms, or symptoms secondary to vitamin deficiencies and/or anemia).³

Optimal testing for CD is controversial. Some have advocated mass screening strategies, however current testing for CD typically targets patients with suggestive signs and symptoms, first degree relatives of patients with CD and other high-risk groups.⁴ Recently, the U.S. Preventive Services Task Force concluded that the current evidence is insufficient to assess the relative benefits and harms of screening for CD in asymptomatic patients.⁵

Definitive diagnosis of CD often requires interpretation of clinical, serologic and biopsy findings. Test selection is complicated by multiple available assays. Moreover, assays with the highest combined sensitivity/specificity are immunoglobulin (IgA) -based, and patients with unsuspected IgA deficiency (present in 0.1-0.2% of the general population and 2-3% of CD patients) may yield false negative results. Current serologic assays detect anti-transglutaminase antibodies (TTG, IgA and immunoglobulin G [IgG]), anti-endomysial antibodies (IgA), and antibodies targeting deamidated gliadin peptides (DGPs, IgA and IgG). Assays detecting non-deamidated gliadin peptide antibodies should no longer be used due to suboptimal sensitivity and specificity. In addition to serologic testing, ancillary assays with potential value in CD include HLA testing for DQ2 and DQ8 (present in 95% and 5% of CD patients, respectively). While HLA testing is not recommended for routine CD testing due to its low positive predictive value, it may be helpful to rule out CD in a narrowly defined set of clinical circumstances (for example, testing in patients who refuse to discontinue a gluten-free diet) due to its high negative predictive value.⁴

In view of the complexity of available assays and the importance of excluding IgA deficiency when IgA-based testing is performed, laboratory driven algorithmic approaches to CD testing have been advocated to ensure the most efficient and reliable testing strategy for patients with CD.

REFERENCES

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