

# Latent Autoimmune Diabetes in Adults: Diagnosis and Treatment

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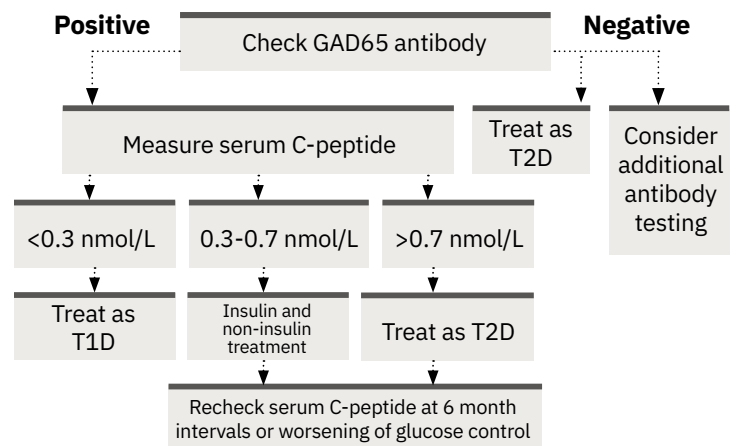


Latent autoimmune diabetes in adults (LADA) is thought to be a form of type 1 diabetes (T1D), but it can have features of both T1D and type 2 diabetes (T2D).<sup>1</sup> More than 40% of patients with T1D presenting after age 30 are initially misclassified and treated as patients with T2D.<sup>2</sup>

Patients with LADA:

- Are typically younger and leaner and require insulin sooner in their treatment course than patients with T2D.<sup>3</sup>
- Have a higher risk of microvascular complications than patients with T2D, due to differences in glycemic control.<sup>3</sup>

**Figure 1. Diagnostic Algorithm for Type 1 Diabetes in Adults**



Adapted from *Management of latent autoimmune diabetes in adults: a consensus statement from an international expert panel*.<sup>4</sup>

## Screening

Screening recommendations for LADA differ by organization but should be considered, particularly, in younger patients (<35 years at onset) or those who have a BMI <25 kg/m<sup>2</sup>.

LADA can be identified by testing patients for one or more autoantibodies, such as glutamic acid decarboxylase (GAD65).<sup>4</sup>

- GAD65 should be the first antibody tested.
- If negative, test for islet tyrosine phosphatase 2 (IA2) and/or zinc transporter 8 (ZNT8), depending on the degree of suspicion.<sup>2</sup>

## Treatment Options

- Treatment of LADA may be guided by serum C-peptide measurement every 6 months or worsening of glucose control (Figure 1).<sup>4</sup>
- In less severe cases, patients may respond to noninsulin therapies, but sulfonylureas should be avoided as they may accelerate beta-cell failure.<sup>2,4</sup>
- Insulin therapy is often required and should not be delayed, particularly if the c-peptide is low or if the patient is markedly symptomatic or has severe hyperglycemia.
- LADA may share features with T2D; lifestyle modifications should also be recommended.<sup>4</sup>

For more information, access Cardi-OH's expanded resource on [diabetes management](#).

### References

- ElSayed NA, Aleppo G, Aroda VR, et al. 2. Classification and diagnosis of diabetes: Standards of Care in Diabetes-2023. *Diabetes Care*. 2023;46(Supplement\_1):S19-S40. doi:10.2337/dc23-S002.
- Holt RG, DeVries JH, Hess-Fischl A, et al. The management of type 1 diabetes in adults. A consensus report by the American Diabetes Association (ADA) and the European Association for the Study of Diabetes (EASD). *Diabetes Care*. 2021;44(11):2589-2625. doi:10.2337/dci21-004.
- Maddaloni E, Coleman RL, Pozzilli P, Holman RR. Long-term risk of cardiovascular disease in individuals with latent autoimmune diabetes in adults (UKPDS 85). *Diabetes Obes Metab*. 2019;21(9):2115-2122. doi:10.1111/dom.13788.
- Buzzetti R, Tuomi T, Mauricio D, et al. Management of latent autoimmune diabetes in adults: a consensus statement from an international expert panel. *Diabetes*. 2020;69(10):2037-2047. doi:10.2337/dbi20-0017.

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