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# LADA presenting as hyperglycemic coma

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## Introduction

- Latent Autoimmune Diabetes in Adults (LADA), is considered a rare subset of Type 1 Diabetes Mellitus.
- These adults do not require insulin at diagnosis but progress to insulin dependence in a short period of time.
- Because of this the diagnosis is often missed and can result in potentially fatal complications such as Diabetic Ketoacidosis (DKA).
- Our case highlights one such example with extreme levels of hyperglycemia of 2345mg/dl and its unique therapeutic challenges.

## Case Presentation

A 49-year-old male with a strong family history of diabetes and recent diagnosis of prediabetes in the outpatient setting was found unresponsive at home.

He had profound hypothermia 28.4 C, hyperglycemia 2345mg/dl, corrected sodium 182mg/dl and ketoacidosis.

Due to altered mental status and seizures he was intubated and fluid resuscitated.

Nephrology were consulted due to high risk of cerebral edema with rapid correction, they advised lowering of glucose no more than 50mg/dl/hour.

He was started on a customized DKA protocol and his mentation and all laboratory abnormalities improved over a 72 hour period. He was extubated and transferred to the floor.

Further workup revealed a C-peptide level of <0.2 ng/ml, GAD antibodies > 120 IU/ml. Patient was diagnosed with Type 1 Diabetes Mellitus (LADA).

## Laboratory Findings

GLUCOSE SERUM		2,345 *	▲
Glucose, metered	>600 *		▲
<b>ROUTINE CHEMISTRY</b>			
Sodium	128		▼
Sodium, whole blood			
Potassium	5.2 *		▲
Potassium, whole b...			
Chloride	81		▼
Chloride, whole blood			
CO2	2 *		▼
Anion Gap	45		▲
Blood Urea Nitrogen	136 *		▲
CREATININE	8.07 *		▲
Beta Hydroxybutyrate	14.84		▲

## AUTOIMMUNE

GAD Antibodies >120 \* ▲

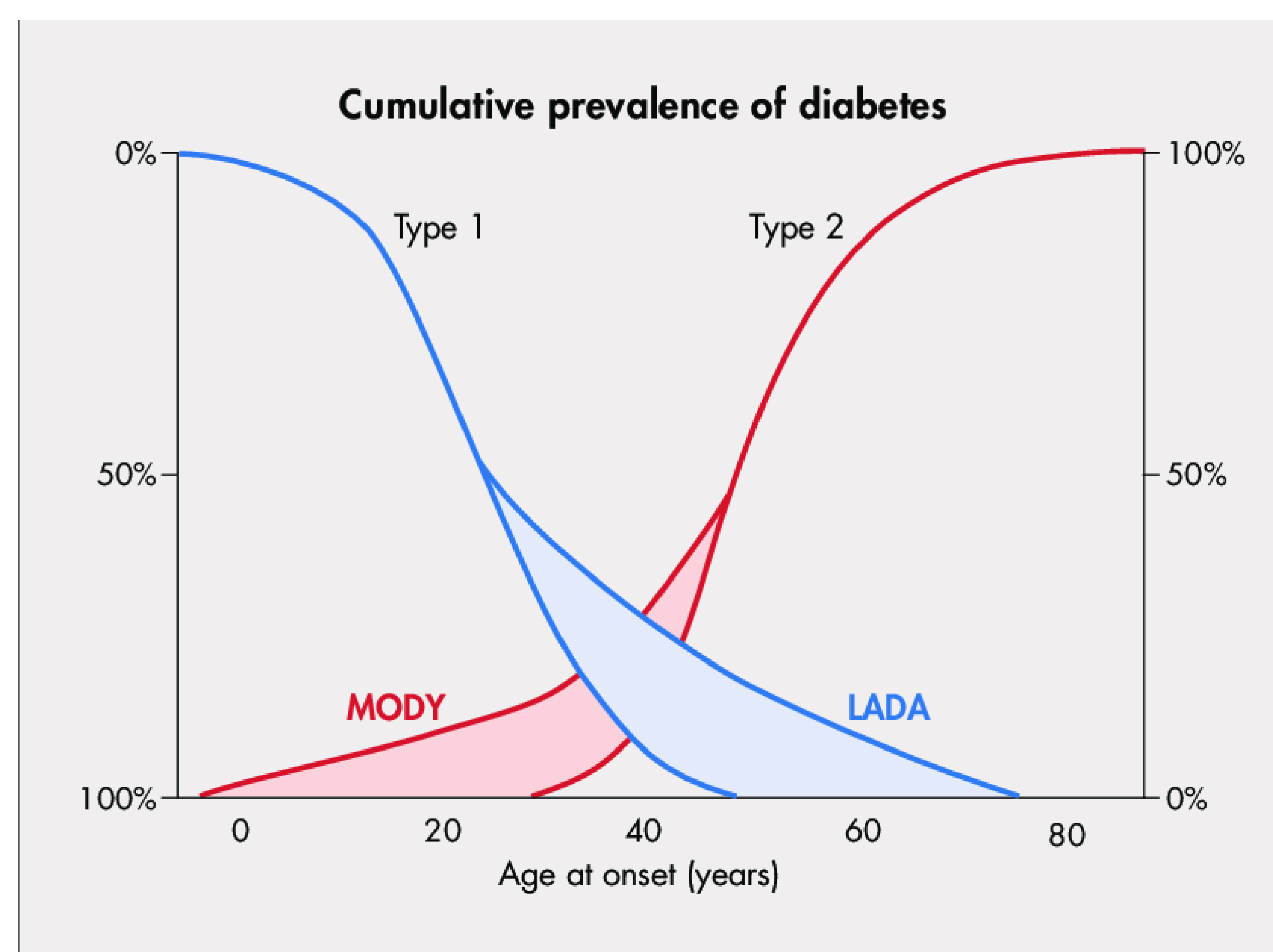


Figure 1: Cumulative prevalence of different types of diabetes by age.<sup>4</sup>

## Discussion

- Adult-onset autoimmune diabetes is a heterogeneous disease with clinical and metabolic features ranging from classical T1DM with onset from childhood to adult age, to LADA. LADA is often misdiagnosed as type 2 Diabetes Mellitus.
- In outpatient practice, while diagnosing diabetes, LADA should be also kept in mind, especially in patients with other autoimmune illnesses who are now developing diabetes and in patients with strong family history of diabetes.
- Cerebral edema occurs when fluid moves from the extracellular to intracellular space faster than brain cells can adapt to increased intracellular volume.
- This can happen when hypernatremia or hyperglycemia is corrected too rapidly, leading to a sudden and pronounced drop in serum osmolality. Close monitoring of the blood glucose level and neurological status is important.

## Conclusion

- Type 1 diabetes mellitus is often unrecognized until acute decompensation.
- This case highlights the importance of remaining vigilant outside of the typical adolescent age group.
- In addition, it describes complications of extreme hyperglycemia including encephalopathy, hypothermia, seizures, acute kidney injury and its careful management in order to prevent catastrophic fluid shifts.

## References

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