

# Does metformin therapy prolong the honeymoon period in obese adolescent with hybrid diabetes?

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## INTRODUCTION

Recently, an overlap of the clinical phenotypes of diabetes is frequently witnessed, making it increasingly challenging to differentiate among the types of the disease. Hybrid diabetes features are being more studied to know better about its characteristics. We describe a case of hybrid diabetes with a prolonged honeymoon due to the use of metformin.

## Case Study

A 10 year old female patient who was diagnosed as type 2 DM at the age of 8 years. She was obese with BMI = 29.8 Kg/ m<sup>2</sup> with marked acanthosis nigricans. She had a patch of vitiligo on the face. The initial HbA1c was 8.7%.Antibodies screen came positive for Anti GAD65, ZnT8, and IA2 antibodies. She was started on insulin basal and bolus with metformin along with behavioral and dietary modifications.

In few weeks, the insulin was stopped completely after titration due to hypoglycemia. The following table summarize the subsequent visits findings:

Time after diagnosis	0	2 mo	8 mo	12 mo	15 mo	17 mo
BMI	29.8	24.5	22.2	22.5	20.2	20.5
HbA1c	8.7%	6.2%	5.7%	7.1%	7.9 %	8.4%
C-peptide	NA	NA			1.8	
Insulin pmol/l	NA	45				
HOMA IR	NA	1.4				
Metformin	500 mg BID	500mg BID	500mg BID	500mg BID	500 mg TID	500mg BID
Insulin therapy	Basal/ bolus	off	off	off	Basal	Basal / bolus

## Discussion

The role of metformin has been described as an adjunctive therapy in overweight young people with T1D. As well , The duration of honey moon in type 1 diabetes has been studied with a duration of remission 7.2+/-4 months . Total remission is less than 3% of total cases .

On the other hand, the changing phenotype of T1DM in the youth and the increasing prevalence of T2DM in childhood population have become a new challenge for physicians who make a differential diagnosis of diabetes and especially for its further therapy.

This patient continued to be off insulin for more than 15 months after diagnosis, and was treated with Metformin, improvement in the BMI and life style modifications . Of note ,A high carbohydrate consumption and non compliance in exercise (despite stable BMI) were reported at 12 months after diagnosis ,the same time when the HbA1c started increasing .

In this case , labeling the patient with a specific type of diabetes was challenging ,especially in the presence of prolonged honeymoon period .

## Conclusion

In this case ,Metformin has proved to be effective adjunctive treatment in hybrid diabetes leading to prolongation of the honeymoon period and delay of insulin therapy for more than 15 months after diagnosis .

