



# Frequency of Hypomagnesemia in Type-2 Diabetes mellitus and Impaired Glucose Tolerance-A Cross- sectional Study

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# Introduction

- Hypomagnesemia (serum magnesium  $<0.65\text{mmol/L}$ ) has been linked to insulin resistance in Type-2 Diabetes mellitus (T2DM) and chronic diabetic complications<sup>1</sup>
- On the other hand, magnesium supplementation in patients with T2DM has shown to improve glycemic control<sup>2</sup>.
- This study aimed to evaluate frequency of hypomagnesemia in patients with T2DM and impaired glucose tolerance (IGT) to decide whether hypomagnesemia needs to be investigated and treated to improve glycemic control and delay complications.

1. Mather HM, Nisbet JA, Burton GH, Poston GJ, Bland JM. Hypomagnesaemia in diabetes. Clin Chim Acta. 1979;95:235-42.

2. Rodriguez-Moran M, Guerrero-Romero F. Oral magnesium supplementation improves insulin sensitivity and metabolic control in type 2 diabetic subjects. Diabetes Care. 2003;26:1147-52.



## Aims and Objectives

- ▶ To Evaluate the frequency of hypomagnesemia in hospitalized patients with T2DM and IGT.



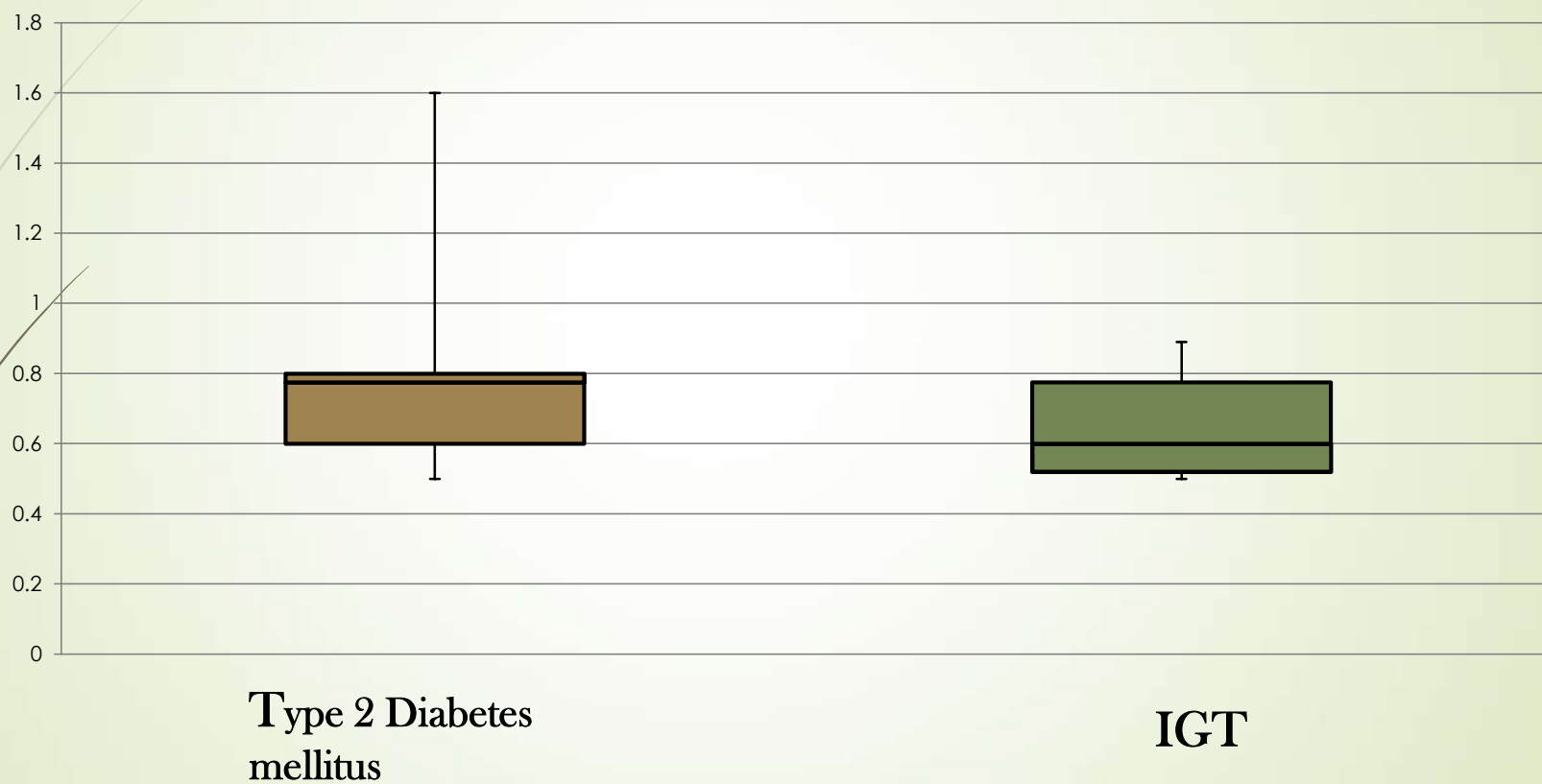
## Study design and Methodology

- This is a cross-sectional study
- conducted among 100 hospitalized adult patients with T2DM and IGT over 6 month period.
- The main outcome variables - serum magnesium level ,HBA1C, post prandial blood glucose level.
- Exclusion criteria- pregnancy, acute diarrhea or vomiting in previous 7 days, recent use of diuretics/laxatives, chronic diarrhea or malabsorption syndrome.

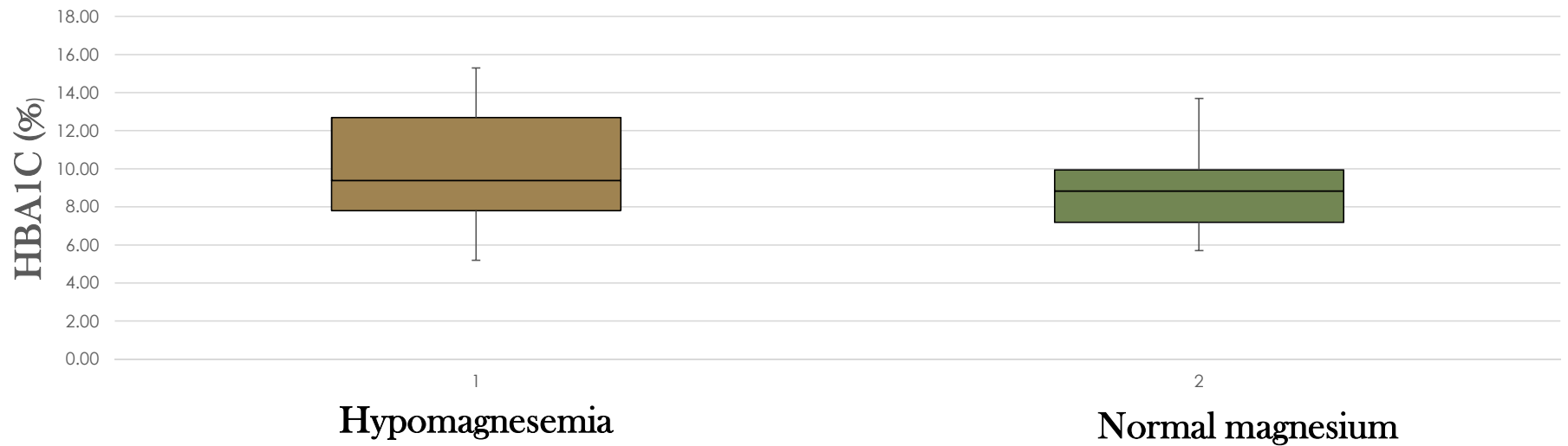
## Results ( Table-1- Demographic Characteristic)

Variable	Results
Age (median $\pm$ SD) (years)	60 $\pm$ 11
Gender (%)	68% male and 32% female
Co-morbidities	
Diabetes (%)	92%
IGT (%)	8%
HTN(%)	86%
CAD(%)	27%
Stroke(%)	31%
Microvascular Complications	
Retinopathy(%)	33%
Nephropathy(%)	37%
Neuropathy(%)	29%

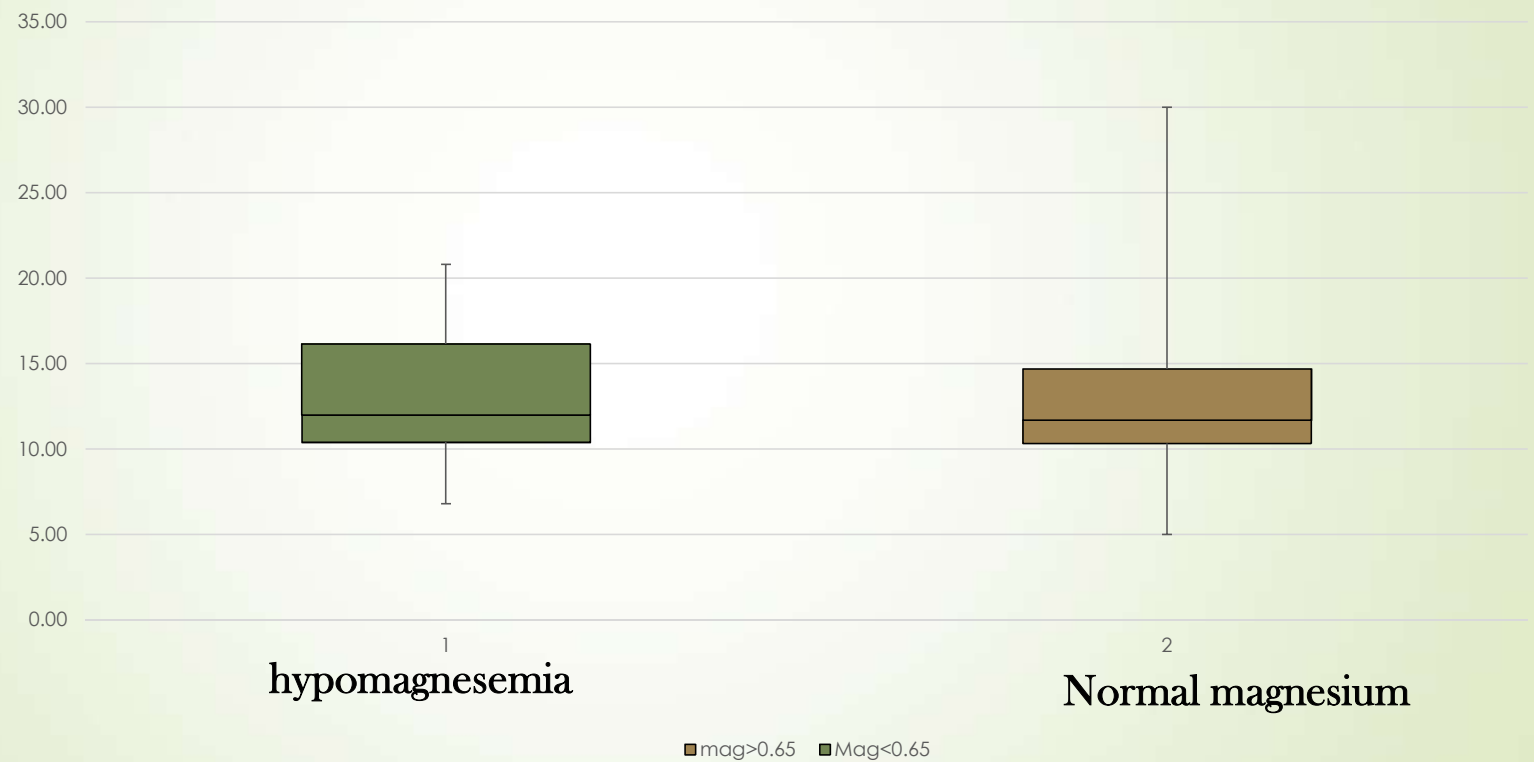
## Magnesium level in T2DM and IGT ( Median and IQR)



## HBA1C in hypomagnesemia Vs Normal Magnesium(Median and IQR)

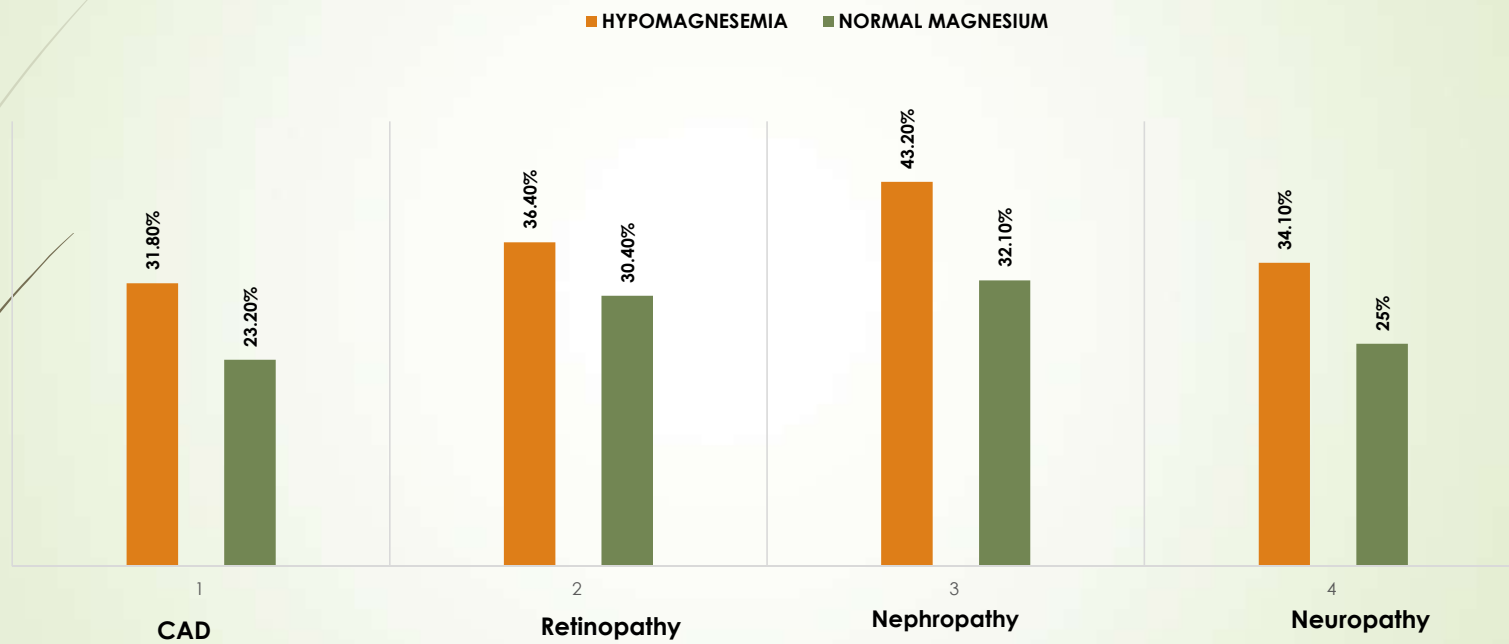


## Post Prandial blood glucose in hypomagnesemia vs normal magnesium ( median and IQR)






# Complication rate in hypomagnesemia vs normal magnesium





## Conclusion

- ▶ Although This study failed to demonstrate statistically significant relationship between serum magnesium and glycemic control; there is evidence of hypomagnesemia in patients with poor glycemic control along with complications.
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Thank you for your attention