

A COMPARITIVE STUDY ON EFFECT OF ORAL HYPOGLYCEMIC AGENTS ON SERUM ELECTROYTES IN TYPE -2 DIABETIC PATIENTS

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ABSTRACT

In Type-2 Diabetes Mellitus patients, combination therapy of Metformin HCl and Glimepiride exhibited reduced electrolyte abnormalities when compared to monotherapy of Metformin HCl and Glimepiride. This study showed the importance of serum electrolytes determination in diabetic patient care as electrolyte abnormalities can cause various problems like irregular heartbeat, fatigue, lethargy, convulsions or seizures, nausea, vomiting, diarrhoea or constipation, altered sensorium and more potentially leading to life-threatening arrhythmias and death.

Introduction

Drugs used to treat diabetes can cause electrolyte disturbances, including mainstays of therapy like Biguanides (Metformin) and Sulfonyl Urea's (Glimepiride). In the present study an attempt has been made to find out the effect of Metformin HCl and Glimepiride based combined therapy over the treatment with single oral hypoglycemic agents on serum electrolytes in patients with Type 2 Diabetes Mellitus.

Aim and objecives

To compare the effect of monotherapy (i.e. Metformin or Glimepiride) and combination therapy (Metformin/ Glimepiride) on serum electrolytes in Type -2 diabetic patients

METHODOLOGY

Study design: Prospective Observational Study

Study duration: 6 months

Study site: Study was conducted at General medicine Department at a tertiary-care hospital in South India.

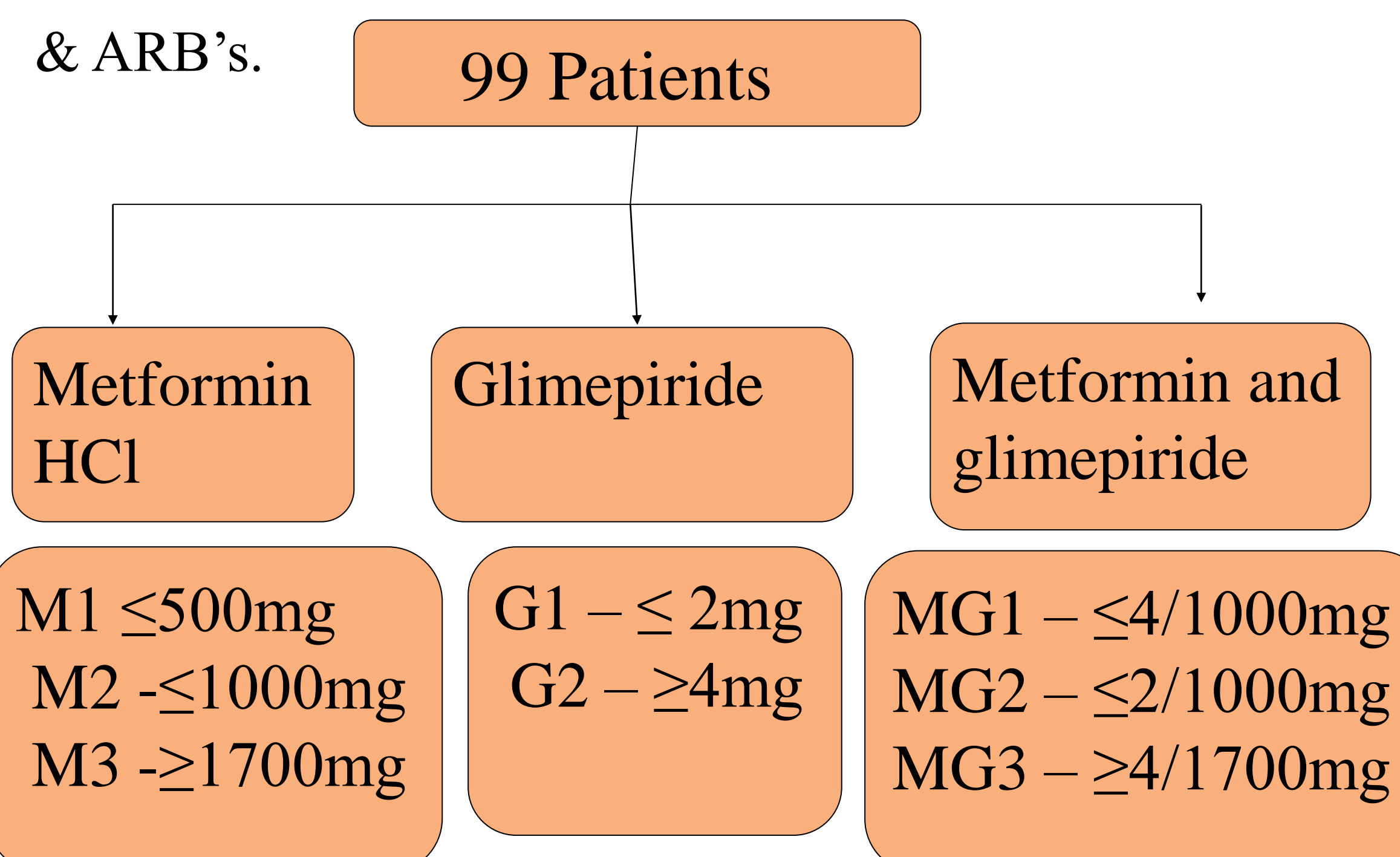
Sample size: 99 Patients

INCLUSION CRITERIA:

- Known diabetic patients (more than 1 year)
- Subjects of In and out patient departments.

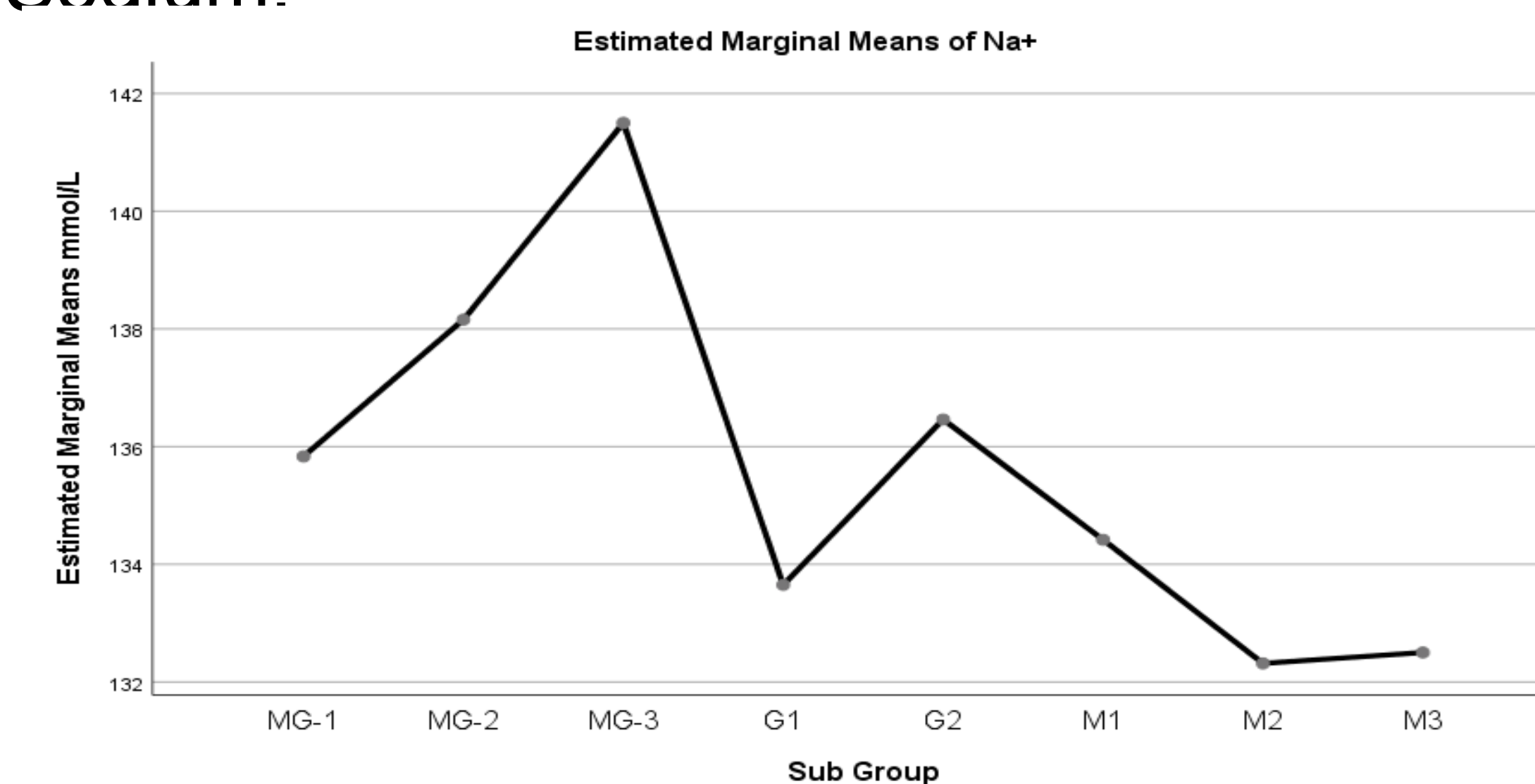
EXCLUSION CRITERIA:

- Patients with de Novo diabetes
- Patients with known electrolyte abnormalities
- Patients with renal or hepatic impairment
- Patients with CHF, SIADH, Addison's disease hypothyroidism
- Patients with chronic severe vomiting or diarrhea
- Patients taking medications like diuretics, antidepressants, NSAIDS, amphetamine, ACE inhibitors & ARB's.



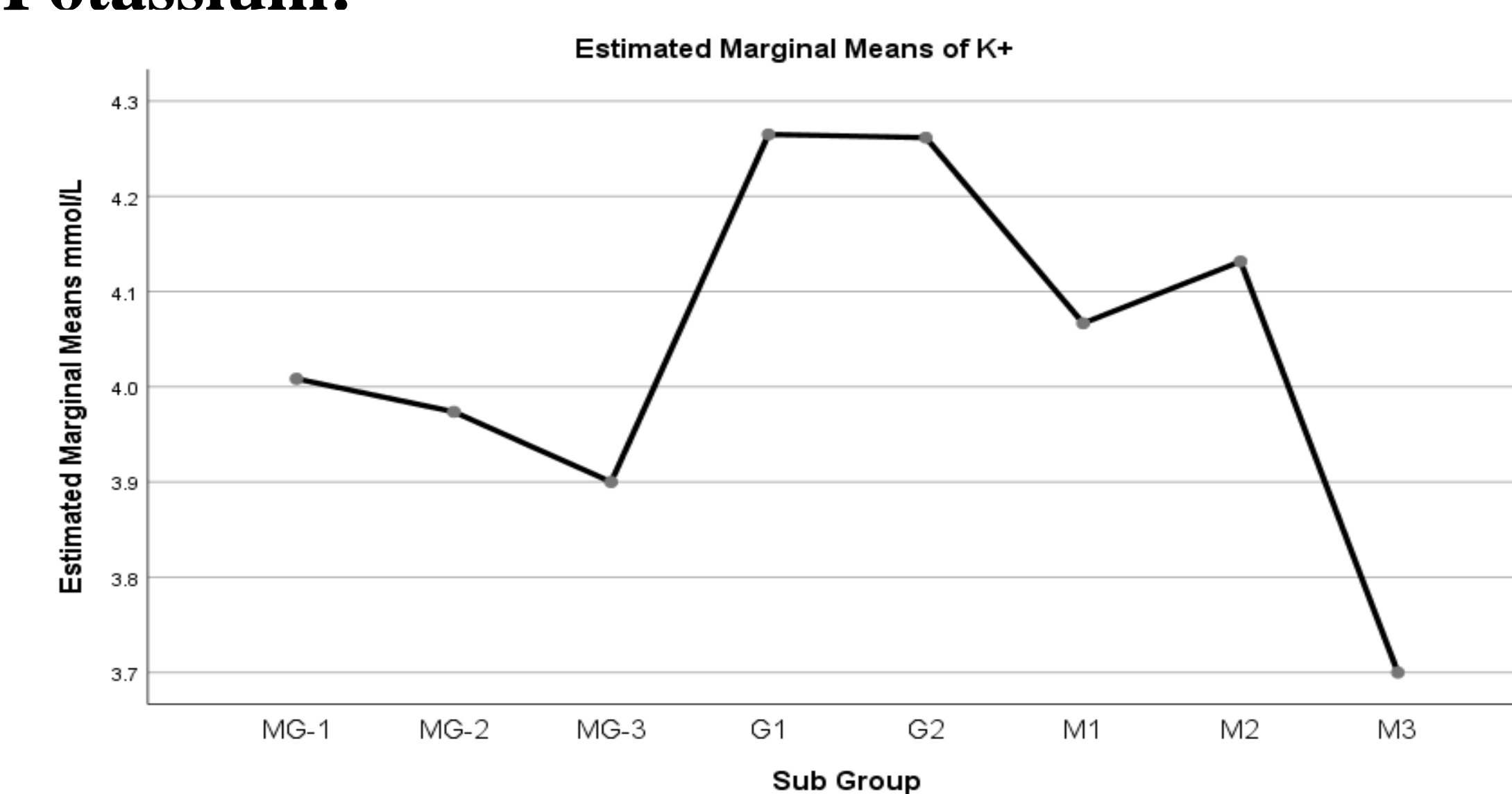
RESULTS

Sodium:

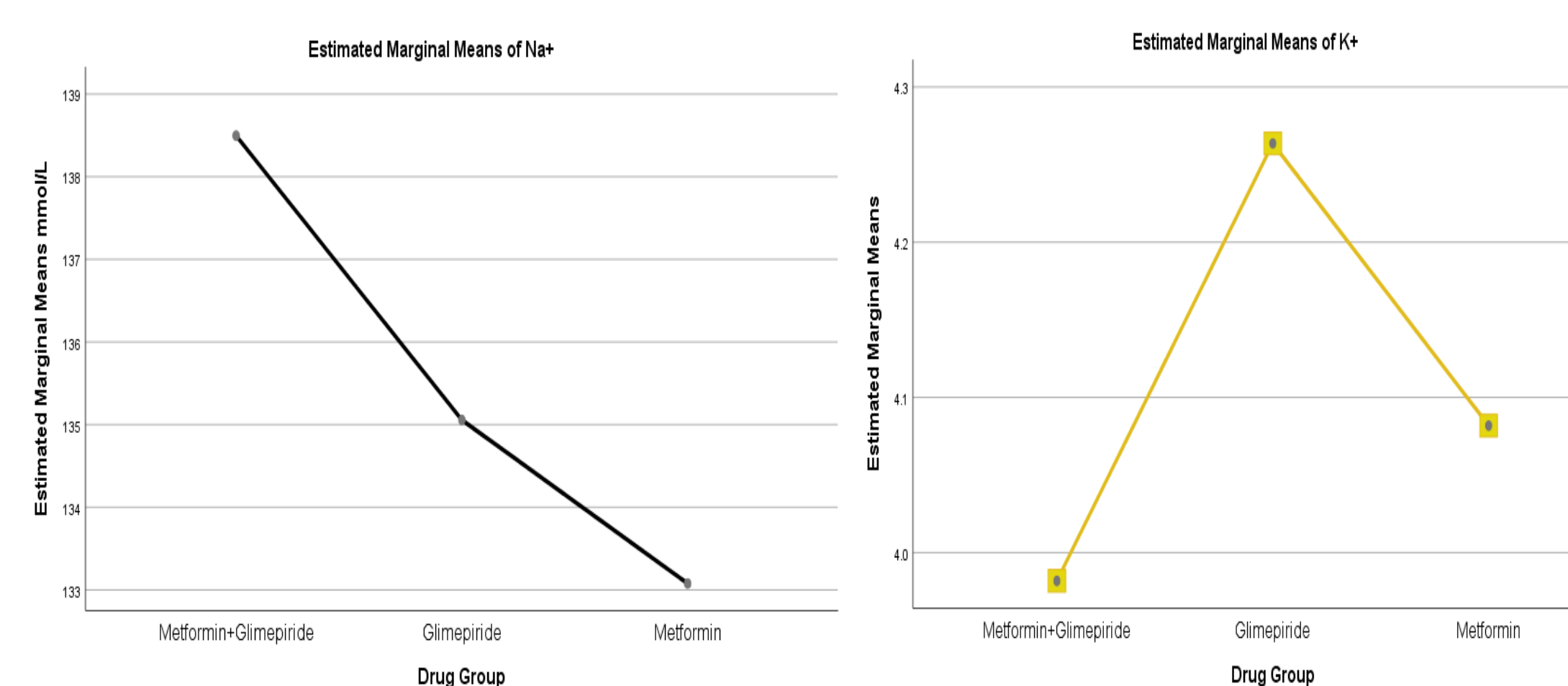


Estimation of marginal means of Na+ in sub groups of three drug groups

Potassium:



Estimation of marginal means of Na+ in sub groups of three drug groups



Estimation of marginal means of Na+ in three drug groups

Estimation of marginal means of K+ in three drug groups

DISCUSSION

Data was analyzed using SPSS version 25.0. The results were evaluated using multivariate analysis of variance (MANOVA) test. When all groups were compared, Na+ levels showed statistical significance (p value < 0.05). When all groups were compared, K+ levels doesn't show statistical significance. Out of 99 patients, 23 patients showed hyponatremia, 5 patients showed hypokalaemia, 1 showed hyperkalaemia.

CONCLUSION

In Type-2 DM patients, combination therapy Metformin HCl and Glimepiride exhibited less electrolyte abnormalities when compared to monotherapy of Metformin HCl and monotherapy of Glimepiride.

REFERENCES

- Aisha Javaid, Ruqaiya Hasan, AsmaZaibAndShIamaMasroor, A Comparative Study Of The Effects Of Hypoglycemic Agents On Serum Electrolytes In The Diabetic Patients, Pakistan Journal of Pharmaceutical Sciences 2007. 18(2):4-19