Evaluation of Intravenous Magnesium Compared to Oral Magnesium in the Emergency Department Prior to Discharge

Introduction

There has been no guideline-directed therapy to evaluate which patients should receive intravenous (IV) versus oral magnesium in the ED for hypomagnesemia. The purpose of this study was to compare the usage of IV and oral magnesium to evaluate the associated emergency department (ED) length of stay (LOS) and rate of ED re-visit and inpatient hospital re-admission.

Methods

This study was a retrospective chart review that included 200 patients in the ED who were given IV or oral magnesium between May 5th, 2023 and September 1st, 2023. Patients 18 years or older were included and assessed for magnesium level, serum creatinine, dose of IV and oral magnesium, LOS in minutes in the ED, and rate of ED re-visit and inpatient re-admission within 30 days. Patients were excluded if they received both intravenous and oral magnesium or had a diagnosis of COPD, asthma, torsades de pointes, migraine, pre-eclampsia, or atrial fibrillation.

Results

100 patients were included in the IV magnesium group and 100 patients were included in the oral magnesium group. The average magnesium level in the IV group was 1.5 mg/dL and 1.7 mg/dL in the oral group. The average LOS in the IV group was 504 minutes and 314 minutes in the oral group ($p=0.007$). The rate of 30-day re-visit and inpatient re-admission in the IV group was 34% and 32% in the oral group ($p=0.881$). There was no difference found between the two groups.

Conclusions

The use of oral magnesium instead of IV in the ED proved useful in determining the best course of action for a decreased stay. This could positively impact patient care by removing a barrier to additional treatments or discharge.