

Presentation Category: Student – Research Complete

Abstract Title

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

Learning Objective

Describe the difference in length of stay and rate of emergency department re-visit/inpatient hospital re-admission between intravenous and oral magnesium usage.

Abstract

Purpose

Magnesium supplementation in the emergency department (ED) is used to treat a variety of conditions. Currently, there is no guideline directed therapy to evaluate which patients receive intravenous (IV) versus oral magnesium in the ED. The purpose of this study is to compare the usage of IV and oral magnesium to evaluate the associated ED length of stay (LOS) and rate of ED re-visit and inpatient hospital re-admission.

Methods

This study is a retrospective, IRB approved, chart review at a single institution 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 included and assessed for magnesium level, serum creatinine, dose of IV magnesium, dose of oral magnesium, and LOS in minutes in the ED. The rate of ED re-visit and hospital inpatient re-admission within 30 days were also collected. 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. Data was analyzed using descriptive statistics, such as, the Pearson Chi Square test and two-sided T-test.

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 dose of IV magnesium was 2 g at a rate of 2 g over 2 hours. The average dose of oral magnesium was 400 mg. The average LOS in the IV group was 504 minutes and 314 minutes in the oral group. The rate of 30-day ED re-visit and hospital inpatient re-admission in the IV group was 34% and 32% in the oral group.

Conclusions

The LOS (minutes) proved to be shorter in the oral magnesium group (314 minutes) than the IV magnesium group (504 minutes) by 190 minutes. The rate of ED re-visit and inpatient hospital re-admission was shorter in the oral magnesium group (32%) than the IV group (34%) with a 2% decrease. The average dose of IV magnesium was 2 g while oral magnesium was 400 mg hinting at a potential standard dose. The average level of magnesium was lower in the IV group at 1.5 mg/dL and higher at 1.7 mg/dL in the oral magnesium group. In more critical magnesium levels providers used IV magnesium.

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