

BACKGROUND

- Currently, there are no medical guidelines that recommend a magnesium replacement strategy for patients with hypomagnesemia in the emergency department (ED).
- Hypomagnesemia is defined as a serum magnesium level ≤ 1.9 mg/dL.
- The purpose of this study was to evaluate differences in ED length of stay (LOS) between patients receiving intravenous (IV) or oral magnesium, as well as ED re-visit and inpatient hospital re-admission rates.
- Low magnesium can be caused by alcohol use, diarrhea, polyuria, and malnutrition.
- If untreated low magnesium levels can lead to cardiovascular effects, migraines, and other serious health issues.

METHODS

- This study is a retrospective, IRB approved, chart review of 200 patients at a tertiary academic center in Springfield, IL from May 5th, 2023 to September 1st, 2023.
- Patients 18 years or older were included and assessed for magnesium level, serum creatinine, dose of IV and oral magnesium, and LOS (minutes).
- Patients were excluded if received both IV 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, pearson chi square test, and two-sided t test.

RESULTS

Figure 1: Average Length of Stay in the Emergency Department (n = 100 in each arm)

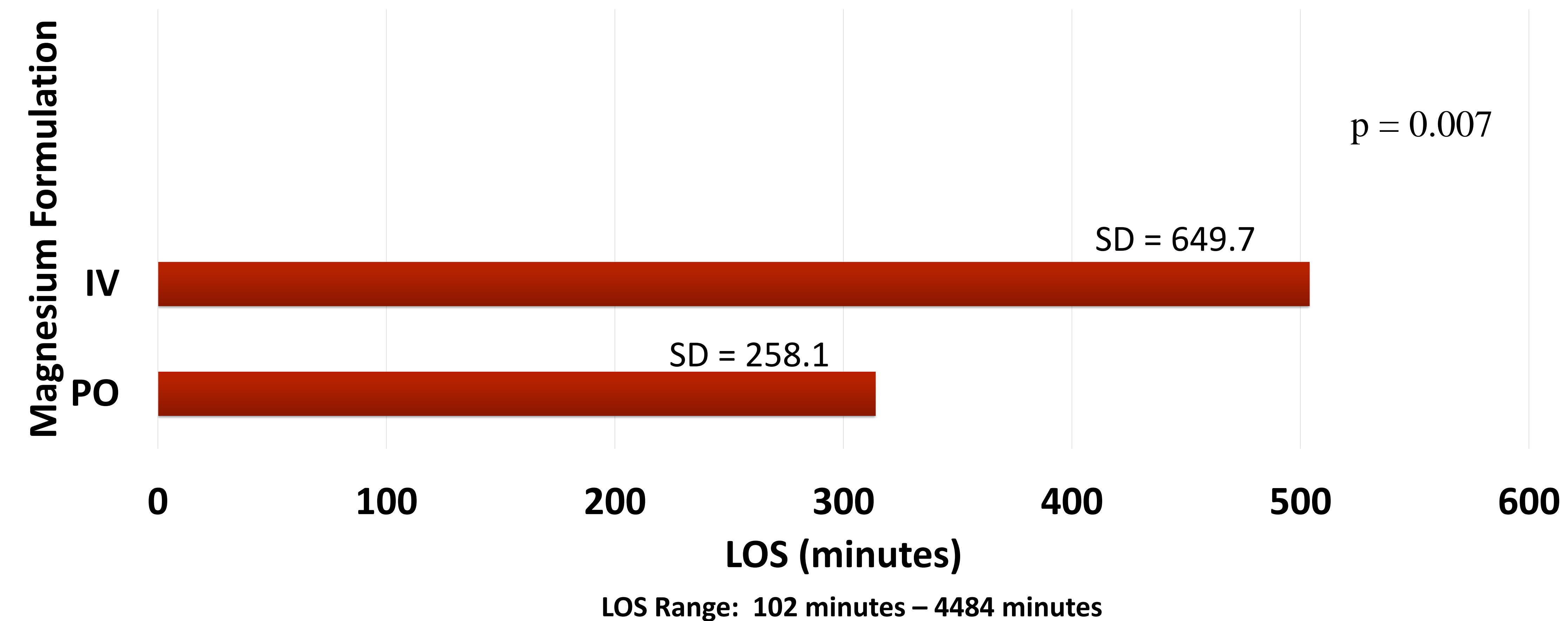


Figure 2: Average Magnesium Level Before Magnesium Administration

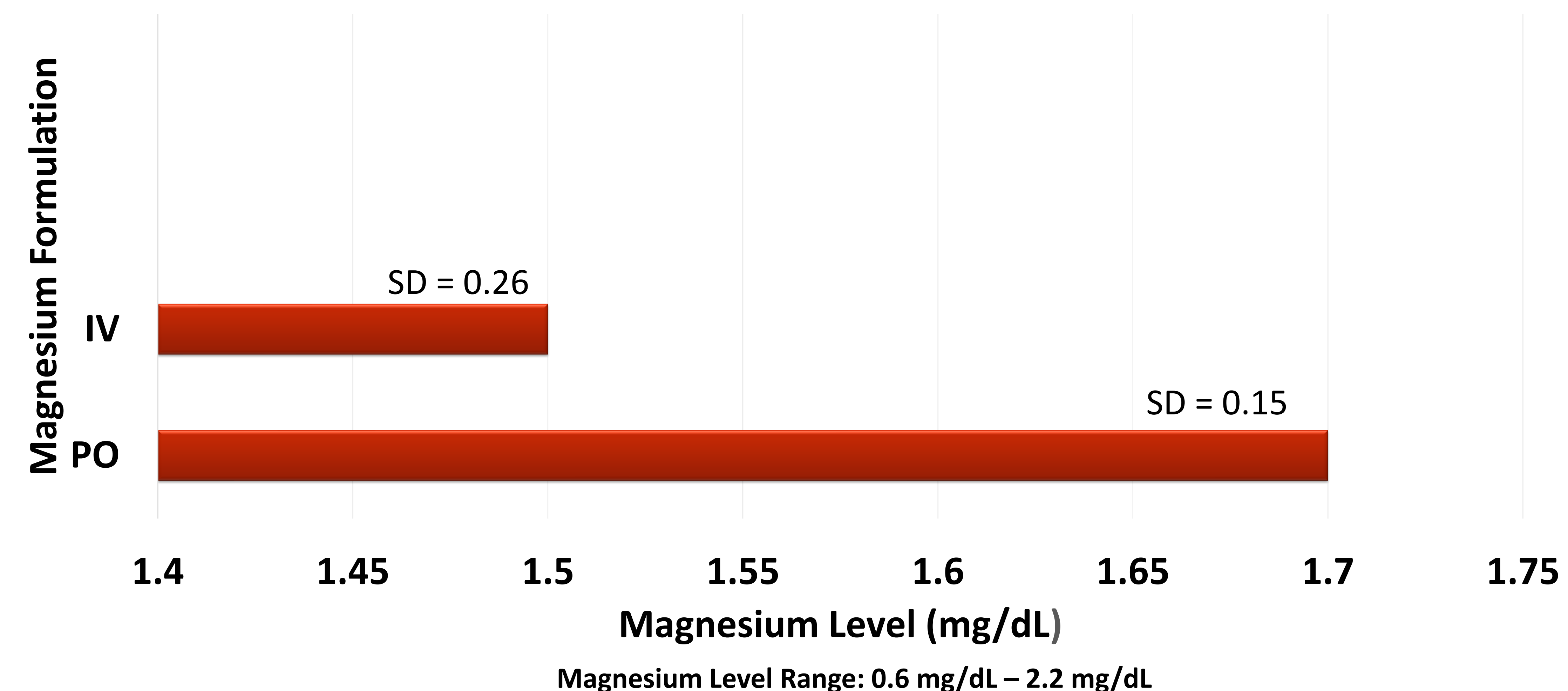
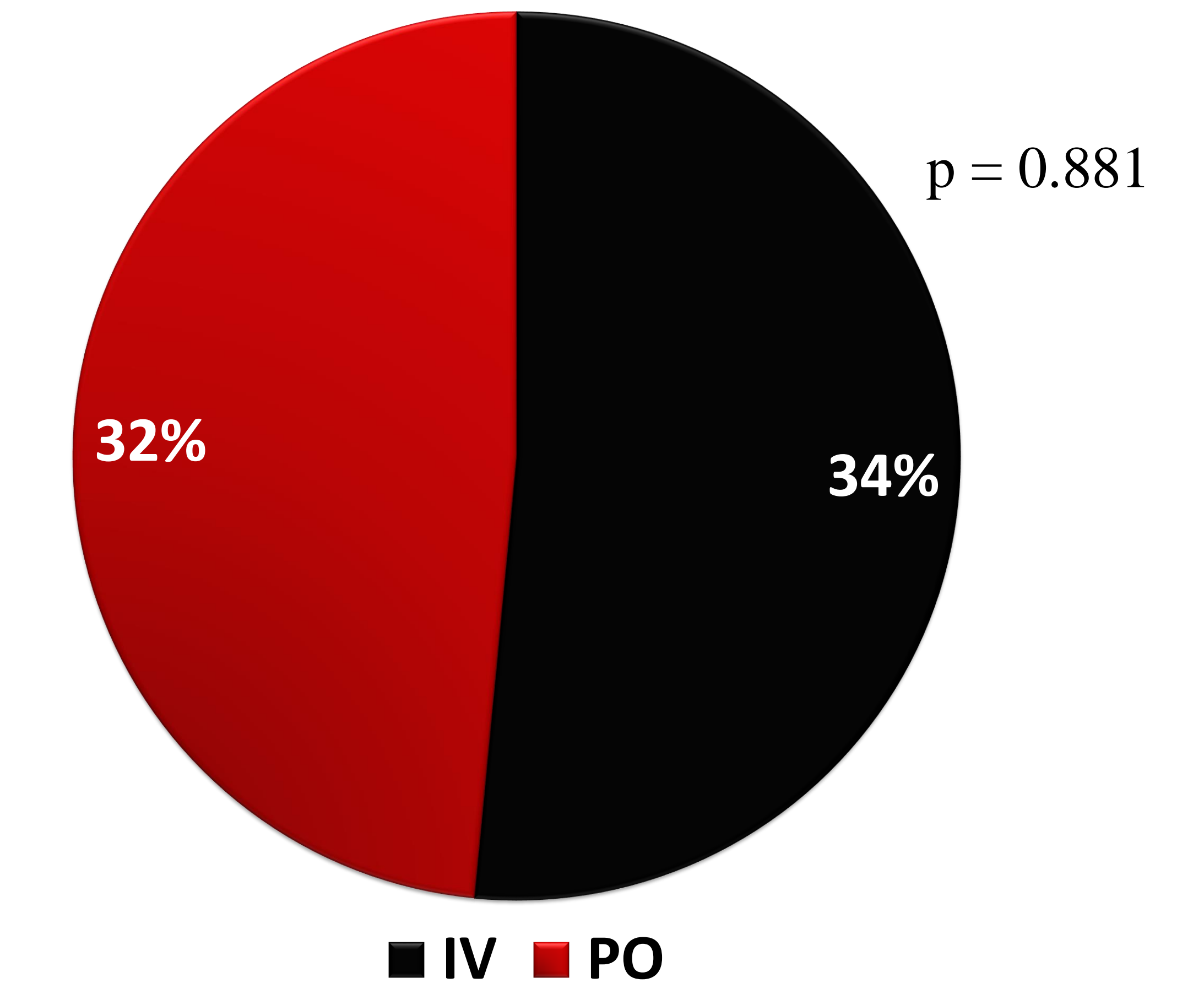


Figure 3: Rate of Emergency Department Re-visit and Inpatient Hospital Re-admission



CONCLUSION

- A difference was found in LOS between the IV and oral magnesium groups. Oral magnesium can decrease the LOS in the ED.
- There was no difference in rate of ED re-visit and inpatient re-admission between the IV and oral magnesium groups.
- The average dose was 2 g over 2 hours in the IV group and 400 mg in the oral group.
- Study limitations included reaching 100 patients in the IV group before the oral group and the severity of illness was not assessed.
- A larger patient population and multicenter study is recommended.