

**Abstract:**

**Introduction:** Due to the renal handling mechanism of magnesium, prolonging the time for infusion of intravenous (IV) magnesium has been postulated to decrease magnesium requirements; however, a paucity of clinical evidence exists to support prolonging infusion rates.

**Objective:** To assess if there is a difference in magnesium replacement required in the medicine population at an academic medical center when prolonged infusion rates (0.5 g/h) are compared to short infusion rates of  $> 0.5$  g/h.

**Methods:** A retrospective chart review was performed before and after implementation of the hypomagnesemia protocol (November 2015). Patients who received at least one dose of IV magnesium during hospitalization were selected from general medicine units. Primary aim was to determine if a difference exists in percent of days IV magnesium repletion required between patients receiving prolonged versus short infusion rates. Secondary objectives were to determine if a difference exists in total grams of magnesium received, percent of days magnesium levels were maintained in the optimal (1.4-2.7) and desired (2-2.7) therapeutic ranges, and incidence of hypomagnesemia ( $< 1.4$  g/dL) and hypermagnesemia ( $> 2.7$  g/dL). For safety, incidence of hypotension (systolic blood pressure  $< 90/60$  mm Hg) during the magnesium infusion was recorded.

**Results:** Totally, 45 patients were included in each cohort for a total of 90 patients to meet power. No differences existed between protocol groups for any demographic variables (all  $P > .05$ ). Median infusion rate for the short infusion cohort was 1.8 g/h (range 1-2 g/h). Percent of days IV magnesium was replaced was 34.8% versus 37.8% ( $P = .39$ ) in the short and prolonged infusion groups, respectively. No difference existed between groups for secondary outcomes (all  $P > .05$ ).

**Conclusion:** Prolonged magnesium infusion rates did not decrease magnesium replacement requirements. These results have been used to propose revision of our current magnesium infusion protocol to reduce infusion length.

**Reference:**

Doshi, S., Waller, J. and Clemmons, A. (2020) Prolonged Versus Short Infusion Rates of IV Magnesium in Hospitalized General Medicine Patients with Hypomagnesemia. *Hospital Pharmacy*. 55(1), p.64-68. doi: 10.1177/0018578718817941.