SUBCUTANEOUS MAGNESIUM INFUSIONS FOR THE TREATMENT OF REFRACTORY HYPOMAGNESEMA WITH SEIZURES

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BACKGROUND

• Magnesium (Mg) is an abundant mineral in the body and is necessary to maintain many biological processes.
• Hypomagnesemia may be caused by impaired gastrointestinal absorption, or inadequate renal reabsorption.
• Oral and intravenous repletion are common, but not without disadvantages. The subcutaneous (SC) route has proven efficacy for dehydration and, to a lesser degree, hypokalemia.
• While there is little evidence for SC Mg infusions, it provides a potential treatment alternative.

PURPOSE

The purpose of this case report is to describe the successful use of home SC Mg infusions in a patient with severe hypomagnesemia refractory to other methods of Mg repletion, including oral (PO) and intravenous (IV) supplements.

METHODS

- A 46-year-old patient with hypomagnesemia and seizures secondary to suspected renal wasting was referred to our home infusion pharmacy:
  - Mg levels and patient symptoms were monitored over the course of 12 months and compared to baseline data prior to intervention.
  - Patient consent was obtained.

RESULTS

- AFTER 1 WEEK
  - Serum magnesium improved to 1.9 mg/dL
  - Patient reported tolerance of infusions

- AFTER 2 WEEKS
  - Patient subjectively reported improvement of associated symptoms

- AFTER 10 MONTHS
  - Serum Mg remains largely in normal range
  - Infusion frequency decreased to every two out of three days and one adjunctive oral medication was discontinued
  - Patient reported two seizures while on therapy associated with anti-epileptic non-compliance and severe diarrhea
  - Patient continues to tolerate infusions without issue

CONCLUSION

Magnesium supplementation can be given via SC infusion safely and effectively.

REFERENCES


DISCUSSION

• This patient showed a clear benefit from SC Mg infusions:
  - Sustained normal Mg levels were achieved for the first time in several years.
  - Decrease in seizure frequency was documented.
  - We suspect that SC repletion was particularly successful in this patient due to underlying etiology of hypomagnesemia:
    - Adequate doses of PO supplements were not tolerated, and IV repletion resulted in short-term benefit.
  - The slow and protracted Mg absorption allowed for long-term benefit.