

## **SIGNIFICANCE STATEMENT**

Magnesium is an essential bone mineral. In the general population lower serum magnesium levels are associated with an increased risk of fractures. The link between magnesium and hip fracture risk in patients undergoing hemodialysis is unknown. This 2-year follow-up cohort study including 113,683 patients undergoing hemodialysis in Japan found a 23% higher risk for hip fracture in those in the lowest serum magnesium quartile compared with those in the highest serum magnesium quartile, after adjustment for relevant clinical factors. The population-attributable fraction of serum magnesium level for incident hip fracture was 13.7%, which was much higher than that of serum calcium, serum phosphate, and parathyroid hormone levels. Mild hypermagnesemia is associated with a lower risk of hip fracture in patients undergoing hemodialysis.