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**MAGNESIUM DISORDERS AMONG HEMODIALYSIS PATIENTS IN THE UNITED ARAB EMIRATES**

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**INTRODUCTION:** Magnesium is the fourth most abundant cation in the body. It is mainly excreted renally, thus it is expected to be high among dialysis patients. Dialysis patients are advised to restrict dietary potassium and phosphorus, which indirectly decreases intake of magnesium as these electrolytes usually coexist in the same food products. Low magnesium levels among dialysis patients have been associated with higher risk of bone fractures, vascular calcifications, and higher mortality. Large Japanese and American cohorts reported low mean serum magnesium among 1.6-20% of their dialysis population(1,2). As food preferences may be culturally derived, people from different cultures may consume food with variable magnesium contents.

The aim of the study is to measure the prevalence of magnesium disorders among dialysis patients and to test for the relationship with some sociodemographic characteristics and other laboratory variables.

**METHODS:** A cross sectional study was conducted at Sheikh Khalifa Medical City in Abu Dhabi. All hemodialysis patients in Sheikh Khalifa Medical City from January 2017 to December 2017 who have 4 or more magnesium readings were included in the study. A total of 260 patients met the inclusion criteria.

**RESULTS:** 30% of the patients were UAE nationals, 59.2% were males, and the mean age was 55 years. 5%, 31.5%, 36.2% and 27.3% of the patients were underweight, with normal BMI, overweight, and obese respectively. The mean magnesium among our patients was 0.98 mmol/L with a SD +/- 0.15. The normal reference range is 0.66-1.07 mmol/L (1.6-2.6 mg/dL). The prevalence of high serum magnesium level among the studied population was found to be 21.6%, while 78.4% had normal magnesium. There was a statistically significant relationship between high serum magnesium and normal albumin level ( $p < 0.001$ ). There was no statistically significant relationship between serum magnesium level and nationality ( $p = 0.073$ ), gender ( $p = 0.097$ ), or BMI ( $p = 0.678$ ).

Limitations: No information were collected regarding daily nutritional intake or medications.

**CONCLUSIONS:** None of our patients had low mean serum magnesium, in contrast to other reported studies reporting 1.6-20% of their cohort had low magnesium (1,2). In our population, we found that patients with higher serum magnesium level had higher albumin level indicating that dialysis patients with higher magnesium may have a better nutritional status.

## References

- 1) Lacson Jr, E., Wang, W. and Ma, L. (2015). Serum Magnesium and Mortality in Hemodialysis Patients in the United States: A Cohort Study. *Am J Kidney Dis*, 6(66), pp.1056-1066.
- 2) Sakaguchi, Y., Fujii, N., Shoji, T., Hayashi, T., Rakugi, H. and Isaka, Y. (2014). Hypomagnesemia is a significant predictor of cardiovascular and non-cardiovascular mortality in patients undergoing hemodialysis. *Kidney International*, 85(1), pp.174-181.