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News and Views

Parathyroid hormone level predicts mortality in hemodialysis; an old problem remains still

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Abstract

Several studies have found a clear association between higher PTH levels and increased mortality risk in hemodialysis patients. The studies indicate that higher levels of PTH are linked to a higher risk of cardiovascular events, such as heart attacks and strokes, as well as an increased risk of bone fractures.

Keywords: Mortality, Hemodialysis, Secondary hyperparathyroidism, End-stage renal disease, Parathyroid hormone, Calcium, Phosphorus

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Introduction

Hemodialysis is a life-sustaining treatment for end-stage renal disease (ESRD) patients. However, these patients often face numerous complications and have a significantly higher mortality rate compared to the general population (1). Parathyroid hormone (PTH) plays a crucial role in calcium and phosphorus homeostasis, but its excessive secretion in ESRD patients can lead to secondary hyperparathyroidism (SHPT) (2,3). This study aims to investigate the relationship between PTH levels and mortality in hemodialysis patients

Search strategy

For this study, we searched PubMed, Web of Science, EBSCO, Scopus, Google Scholar, Directory of Open Access Journals (DOAJ), and Embase, using different keywords including; mortality, hemodialysis, secondary hyperparathyroidism, end-stage renal disease, Parathyroid hormone, calcium and phosphorus

Parathyroid hormone in hemodialysis patients

Parathyroid hormone regulates calcium and phosphate metabolism in the body. In patients undergoing hemodialysis, abnormalities in PTH levels are commonly observed (4). Several studies have examined the association between PTH levels and mortality in hemodialysis patients, aiming to assess whether PTH can serve as a predictor of mortality. Previous studies found that both persistently high and persistently low PTH levels were associated with increased mortality compared to patients with stable PTH levels within target ranges (4,5). The exact mechanisms underlying the association between elevated PTH levels and mortality are not fully understood. However, it is believed that chronic elevation of PTH may contribute to systemic inflammation, oxidative stress, vascular calcification, and cardiovascular dysfunction (6,7).

Conclusion

Elevated PTH levels are an independent predictor of mortality in hemodialysis patients. Monitoring PTH levels and implementing appropriate interventions to manage SHPT may help improve survival outcomes in this high-risk population. Further studies are warranted to investigate the potential benefits of PTH-lowering strategies and their impact on mortality rates in hemodialysis patients.

Authors' contribution

Conceptualization: Hamid Nasri, Areeb Ansari.
Data curation: Hamid Nasri.
Investigation: Hamid Nasri.
Resources: Hamid Nasri.
Supervision: Hamid Nasri.
Validation: Hamid Nasri.
Visualization: Hamid Nasri.
Writing–original draft: Hamid Nasri, Areeb Ansari.
Writing–review and editing: Ali Shirbacheh, Kamran Shirbache, Areeb Ansari.

Conflicts of interest

The authors declare that they have no competing interests.

Ethical issues

Ethical issues (including plagiarism, data fabrication, and double

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Implication for health policy/practice/research/medical education

Elevated PTH levels appear to be associated with an increased risk of mortality in hemodialysis patients. Healthcare providers should consider monitoring PTH levels as part of the overall assessment of patients undergoing hemodialysis and take appropriate measures to manage secondary hyperparathyroidism..

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