Short Communication

iMedPub Journals
http://journals.imedpub.com

Annals of Clinical Nephrology

2020
Vol. 4 ISS. 6 : SC 12

Association between High-Dose Erythropoiesis-Stimulating Agents, Inflammatory Biomarkers, and Soluble Erythropoietin Receptors

Suzanne K Bryskin, Uptal D Patel, Murat Arcasoy & Lynda A Szczech

Department of Medicine, Duke University Medical Center, 2301 Erwin Road, Durham, North Carolina, 27708, USA

Abstract

Background

High-dose erythropoiesis-stimulating agents (ESA) for anemia of chronic kidney disease (CKD) have been associated with adverse clinical outcomes and do not always improve erythropoiesis. We hypothesized that high-dose ESA requirement would be associated with elevated inflammatory biomarkers, decreased adipokines, and increased circulating, endogenous soluble erythropoietin receptors (sEpoR).

Methods

A cross-sectional cohort of anemic 32 CKD participants receiving ESA were enrolled at a single center and cytokine profiles, adipokines, and sEpoR were compared between participants stratified by ESA dose requirement (usual-dose darbepoetin-α (< 1 µg/kg/week) and high-dose (≥1 µg/kg/week)).

Results

Baseline characteristics were similar between groups; however, hemoglobin was lower among participants on high-dose (1.4 µg/kg/week) vs usual-dose (0.5 µg/kg/week) ESA. In adjusted analyses, high-dose ESA was associated with an increased odds for elevations in c-reactive protein and interleukin-6 ($p < 0.05$ for both). There was no correlation between high-dose ESA and adipokines. Higher ESA dose correlated with higher levels of sEpoR ($rs = 0.39$, $p = 0.03$). In adjusted analyses, higher ESA dose (per µcg/kg/week) was associated with a 53% greater odds of sEpoR being above the median ($p < 0.05$).

Conclusion

High-dose ESA requirement among anemic CKD participants was associated with elevated inflammatory biomarkers and higher levels of circulating sEpoR, an inhibitor of erythropoiesis. Further research confirming these findings is warranted.