

DIALYSIS

High hemoglobin levels—a hemodialysis risk factor?

Debate continues over what hemoglobin targets are appropriate for patients with chronic kidney disease (CKD) who require hemodialysis. Goodkin *et al.* add fuel to the fire with their finding that a hemoglobin level >120 g/l isn't always associated with increased mortality.

“Determining an acceptable hemoglobin range ... for patients on hemodialysis is a key area for future studies”

Target hemoglobin levels >120 g/l (normal range 140–175 g/l) are linked with increased mortality in erythropoiesis-stimulating agent (ESA)-treated patients with CKD, but whether these poor outcomes are an effect of the medications prescribed (ESAs and/or intravenous iron) or of the hemoglobin levels remains unclear. Some investigators have suggested that high doses of ESAs, rather than high hemoglobin targets, might account for this association,

as ESA doses required to correct anemia in hemodialysis show wide variation.

Goodkin *et al.* analyzed data from the Dialysis Outcomes and Practice Patterns Study, a prospective, observational study of patients with CKD. Among the 29,796 participants, the researchers identified 545 who maintained higher hemoglobin levels without ESAs. The researchers attribute the ability to sustain robust erythropoiesis to the retention of the capability to produce sufficient endogenous erythropoietin.

The most important finding was that hemoglobin levels >120 g/l in the ESA-free subgroup were not linked with any increase in mortality compared with the rest of the cohort. In fact, unadjusted mortality risk was lower in this subgroup than in the rest of the cohort, but this difference disappeared after careful adjustment for confounding variables. “Our results suggest that there are [hemodialysis] patient subgroups for whom hemoglobin concentration [>120 g/l] is acceptable and that there is no

impetus to phlebotomize a ... patient who maintains hemoglobin values [>120 g/l] without ESA therapy,” the authors write. Kidney Disease Quality of Life short form scores were also similar in both groups.

Goodkin's team identified an extended duration on dialysis, male sex, smoking, and dialysis without a catheter as being associated with the ability to sustain an adequate hemoglobin concentration without the need for erythropoietic support. Cystic disease was also significantly more common in the ESA-free subgroup (25.1% versus 5.1%).

Determining an acceptable hemoglobin range and pharmacological management strategy for patients on hemodialysis is a key area for future studies.

Steven E. Bradshaw

Original article Goodkin, D.A. *et al.* Naturally occurring higher hemoglobin concentration does not increase mortality among hemodialysis patients. *J. Am. Soc. Nephrol.* 22, 358–365 (2011)