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534

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77

MEAN CORPUSCULAR VOLUME AS A PREDICTOR OF MORTALITY IN INCIDENT HEMODIALYSIS PATIENTS:

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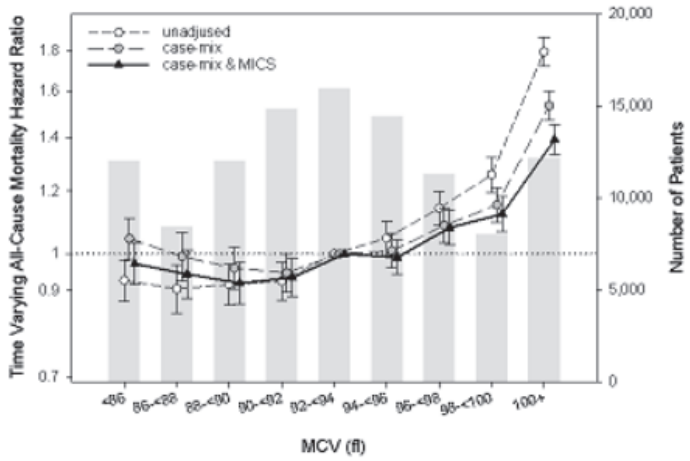
While the anemia of chronic kidney disease (CKD) usually presents as normocytic and normochromic, some patients with advanced CKD suffer from macrocytic anemia. Recently, mean corpuscular volume (MCV) was found to be predictive of mortality in CKD patients. We aimed to investigate this relationship further in a large cohort of hemodialysis (HD) patients.

This retrospective analysis included 109,501 incident HD patients from a large dialysis organization who received treatment during 2007-2011. All-cause and cardiovascular (CV) mortality were examined using baseline and time-varying Cox models. The possibility of non-linear associations was explored and clinically meaningful contributions by MCV were evaluated.

Figure 1. Time-varying all-cause mortality hazard ratios by mean corpuscular volume (MCV) levels across 3 levels of multivariable adjustment.



For both baseline and time-varying Cox models, and across all levels of adjustment, all-cause and cardiovascular mortality hazard ratios increased linearly across MCV categories. Restricted cubic splines did not suggest non-linear relationships between MCV and all-cause or CV mortality in either baseline or time-varying models. Serum albumin and red cell distribution width were stronger predictors of mortality than MCV, as shown by AUROC and NRI analyses. However, after variable adjustment, MCV contributed non-negligible, clinically meaningful information.

MCV was positively linearly associated with all-cause and CV mortality in a large cohort of HD patients. After demographic and comorbidity adjustments, and the addition of serum albumin and red blood cell distribution width to the model, MCV remained an independent and robust predictor of mortality. Further investigation is necessary to understand the underlying nature of the observed association