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Presenting Author: Shuling Li

Department/Institution: Nephrology Analytical Services

Address: 914 South Eighth Street, Suite D-253

City/State/Zip Code/Country: Minneapolis, Minnesota, 55404, United States

Phone: 612-337-8988 **Fax:** 612-347-5878 **E-mail:** nas@nephrology.org **Member Number:**

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Institution: Nephrology Analytical Svc **E-mail:** nas@nephrology.org **Member Number:** 6211

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Title: Anemia and the Risk of Developing Cardiovascular Disease in the General Medicare Population with Chronic Kidney Disease.

Shuling Li MS¹, Robert N. Foley, MD^{1*} and Allan J. Collins, MD, FACP^{1,2*}. ¹ Nephrology Analytical Services, Minneapolis Medical Research Foundation, Minneapolis, Minnesota and ² Department of Medicine, University of Minnesota, Minneapolis, Minnesota .

Abstract:

It has been estimated that approximately 8 million Americans have chronic kidney disease (CKD), a condition frequently complicated by anemia and cardiovascular disease (CVD). In this study we investigated the association between anemia and the development of cardiovascular disease, as well as all-cause mortality among patients with CKD. We used the General Medicare 5% sample and defined 1998-1999 as entry period, with 2000-2001 used as follow-up period. Medicare claims were used to identify 7266 patients aged 67 or more with CKD, but without CVD or ESRD in the entry period, and to define the presence of anemia and other comorbidities. Kaplan-Meier analysis and proportional hazards modeling were used to assess the association between anemia in the entry period and incident CVD, death and a composite of CVD or death in the follow-up period. The mean age of the study population was 76.4, 82.1% were white and 53.7% were female. Anemia was present in 31.2%. The table below summarizes, for each outcome, 2-year cumulative probability of incident events, and adjusted hazards ratios of patients with anemia, compared to those without anemia. We conclude that anemia, a modifiable condition, is associated with higher risks of CVD and all-cause mortality in elderly CKD patients.

	Two-year cumulative probability of incident event*			Adjusted hazards ratio (95% confidence interval)		
	CVD	Death	CVD/Death	CVD	Death	CVD/Death
Non-Anemic	0.42	0.12	0.45	Ref.	Ref.	Ref.
Anemic	0.51	0.23	0.58	1.21 (1.11, 1.31)	1.59 (1.40, 1.80)	1.29 (1.20, 1.39)

*p<.0001 for each outcome