American Society of Nephrology-ASP-Junior Development Award in Geriatric Nephrology

Award Recipient:

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Project:

Characterization of Frailty in Older Patients with Chronic Kidney Disease on Dialysis: Correlations with Disability and Inflammation

Mentorship Team:

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The relationship between frailty, functional status, and inflammation in the geriatric population with chronic kidney disease (CKD) is an area of growing significance. The geriatric syndrome of frailty is a wasting syndrome whose major characteristics include muscle weakness, weight loss, and functional decline with increased risk for major cardiovascular events, falls, disability, and death. It has a biological basis and is associated with increased levels of inflammatory biomarkers.

Clarification of frailty and functional disability is important in the elderly with CKD, especially those with end-stage renal disease (ESRD) on dialysis, a rapidly growing segment. Uremia and the dialytic procedure represent micro-inflammatory environments where endothelial dysfunction, chronic repetitive inflammation, and oxidant stress contribute to the malnutrition and excessive cardiovascular morbidity in ESRD. Additionally, Advanced Glycation Endproducts (AGEs) known to increase with the aging process, diabetes, and renal failure have been hypothesized to be triggers or catalysts of the oxidative (glycoxidation) stress and inflammatory states associated with these conditions.

CKD, ESRD, and dialysis may contribute to or accelerate the expression and progression of frailty and disability in predisposed subsets of the geriatric population. Alternatively, frail patients may bring a particular inflammatory and oxidative milieu that will enhance the development and progression of CKD. CKD can be viewed as a "silent co-morbidity" interacting with the biology of frailty to affect functional outcomes. Identifying these populations and controlling the inflammatory and oxidative stress burden may limit the manifestations and consequences of frailty. Equally important is whether the frailty syndrome and its associated biomarkers have prognostic value in renal clinical practice and could help patients and families make decisions regarding the direction of their care as well as leading to more individually tailored dialysis prescriptions based on the frailty and inflammatory/oxidative burden.

The objectives of this ASN-ASP research project are to:

1. Estimate the frequency of the geriatric syndrome of frailty, functional disability, and intervening health events in a cohort of outpatient elderly dialysis patients.

2. Determine the association between levels of biomarkers of inflammation, specifically CRP and AGEs, and frailty.

3. Obtain pilot data to determine if frailty and levels of CRP and AGEs are predictors of survival and the development or worsening of functional disability in the context of intervening health events in the dialysis population.

The support of the American Society of Nephrology-ASP-Junior Development Award in Geriatric Nephrology will allow me to pursue independent research and support my long-term objective to contribute to the development of a new multidisciplinary field that incorporates the principles of geriatrics, nephrology, and palliative medicine into the subspecialty of geriatric nephrology and renal palliative medicine. Using the experience and knowledge base I acquired during my geriatrics fellowship, my academic goals will include the development and dissemination of evidenced-based geriatric nephrology and renal palliative medicine teaching modules, guidelines, and updates. This endeavor will add to the growing field of geriatric subspecialties that are now crucial for the care of the exploding older population with complex medical and surgical issues that require the integration of diverse knowledge bases and collaboration and communication among multiple health care professionals.