

Is Age an Independent Factor in Assessing Renal Health and Function in Healthy Individuals? A Pilot Study

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ABSTRACT

Estimated glomerular filtration rate (eGFR) is a measure of renal filtration and clearance of serum creatinine and is conventionally used to characterize the progressive decline in renal function. Assessment of renal function and health is traditionally believed to be age-dependent. However, in the absence of cardiometabolic diseases (hypertension, diabetes, hyperlipemia, etc.), this may not be the case. Recently, novel markers of renal health and function support the notion that age is a secondary factor influencing renal decline. **PURPOSE:** To determine the magnitude of age as an influencing factor involved in the decline of renal function with novel markers of renal health and function in the absence of cardiometabolic risk factors. **METHODS:** Thirty-nine participants (n = 18 men; n = 21 women; age 32.5 ± 12.6 yr; height 171.1 ± 11.4 cm; weight 78.7 ± 15.6 kg; BMI 27.1 ± 5.8 ; SBP 120 ± 11.2 ; DBP 78 ± 6.6 ; CHOL 173 ± 30 ; and GLU 96 ± 7) completed a single health assessment to quantify renal health and function. Blood and urine samples were collected by the same technician under standardized conditions and stored at -60 °C until project completion. Serum creatinine (sCR), urine creatinine (uCr), urine epidermal growth factor (uEGF), uEGF/uCr ratio (uEGFR), cystatin C (CyC) and eGFR - modification of diet in renal disease (MDRD) and the CKD-EPI - responses were analyzed and compared in age groups (20s, 30s, 40s, 50s) using 4 (group) by 1 (sample) ANOVAs. **RESULTS:** There were no significant differences in markers of renal health and function between any age group. sCR ($p = 0.90$), uCr ($p = 0.17$), uEGF ($p = 0.15$), CyC ($p = 0.32$), uEGFR ($p = 0.28$), MDRD ($p = 0.17$), and CKD-EPI ($p = 0.83$). **CONCLUSION:** In healthy individuals, changes in renal health and function appear to be independent of age in the absence of cardiometabolic diseases. Indicating renal health and function could potentially be maintained throughout adulthood, middle age, and possibly attenuated in the senior years with the continued absence of cardiometabolic diseases.