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335**HIGHER SERUM PHOSPHORUS AND RISK OF ANEMIA IN A NON CKD POPULATION**

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Elevations in serum phosphorus have been associated with anemia in the ESRD population but this association is not well studied in earlier CKD stages or those without CKD. We sought to evaluate whether non-CKD individuals with higher phosphorus levels were at greater risk of anemia among a large ethnically diverse population.

Cross sectional study in the period 1/1/1998 through 12/31/2009 was performed within the Kaiser Permanente Southern California health system. Individuals age \geq 18 with 1) documented serum phosphorus, 2) hemoglobin value, and 3) eGFR \geq 60ml/min were evaluated. Anemia was defined as hemoglobin $<$ 11g/dl. Serum phosphorus levels were categorized into population based quartiles. Multivariable logistic regression analyses were used to calculate odds ratios (ORs) for anemia based on phosphorus quartiles and phosphorus in increments of 0.5mg/dl.

Total of 32,907 individuals (mean age 52 yrs, 62% women, 15% blacks, 26% Hispanics and 7% Asians) were identified. Serum phosphorus ranged from 1.9 to 5.7mg/dl. 13% met criteria for anemia. Multivariable ORs for anemia per every 0.5mg/dl increase in phosphorus was 1.07 (1.04-1.10). ORs for phosphorus quartiles 3.1-3.5, 3.5-3.9, and 3.9-5.7 (ref: phosphorus 1.9-3.1mg/dl) were 0.85, 0.90, and 1.05 respectively. These ORs were more pronounced in men.

Hence, there is an incremental and strictly linear trend for higher risk of anemia in individuals with higher serum phosphorus levels who do not have obvious CKD.