ANEMIA AND RISK OF PARKINSON'S DISEASE IN A PROSPECTIVE STUDY AT KAISER PERMANENTE NORTHERN CALIFORNIA (KPNC)

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Introduction: While a history of anemia has been reported to be associated with Parkinson's disease (PD), the association is unclear.

Methods: We studied a cohort of KPNC members who participated in the Multiphasic Health Checkup Cohort (1964-1973) and remained members after 1995 (n=66,212). Cases were neurologist diagnosed PD (n=1,154). Anemia and related factors were from either the baseline questionnaire or standard laboratory assays. Proportional hazard models were used to estimate the hazard ratio (HR) and 95% confidence interval (CI) associated with exposure factors after adjustment for confounding.

Results: The mean follow-up time for the full cohort was approximately 38 years and included over 2.4 million person-years. Relative to never having anemia, the HRs for reporting anemia in the past, currently, or both in the past and currently were 1.06 (CI 0.87-1.29), 1.14 (CI 0.66-1.99), and 1.44 (CI 1.05-1.98), respectively. Compared to the lowest quartile, the HR for the 2nd through 4th (or highest) quartiles of hematocrit were 1.05 (CI 0.76-1.46), 0.75 (CI 0.52-1.09), and 0.67 (CI 0.44-0.99), respectively. Iron saturation was inversely associated with PD (relative to the lowest quartile, HRs for the 2nd-4th quartile; 1.04 (CI 0.62-1.46), 0.80 (CI 0.46-1.38), and 0.67 (CI 0.38-1.17), respectively). A modest increase in risk with increasing hemoglobin was observed (relative to the lowest quartile, the HRs for the 2nd-4th quartile; 1.05 (CI 0.89-1.26), 1.08 (CI 0.89-1.31), and 1.12 (CI 0.90-1.39), respectively).

Conclusions: These prospective data suggest that anemia and/or related measures determined long before disease onset affect the risk of PD.