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## Relationship of Homocysteine level and Comorbidities in VA Patients: A Retrospective Chart Review

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**Title:** Relationship of Homocysteine level and Comorbidities in VA Patients: A Retrospective Chart Review

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**Introduction:**

Elevated serum homocysteine is known to be associated with endothelial dysfunction, which is seen in multiple chronic diseases which include, but is not limited to Alzheimer's, Dementia, and cardiovascular disease. This necessitated our investigation into serum homocysteine levels in VA patients and their associated comorbid disorders. Our study aimed to investigate comorbidities associated with elevated homocysteine levels, defined by being greater than 15 micromole/liter.

**Methods:** Informatics at the VA was used to obtain a list of 654 patients with homocysteine drawn during the period of the study (7/21/2009 through 12/31/2013) at the John D. Dingell VAMC. Subjects were adults over 18 years of age. Patient gender, BMI, vitals, vitamin supplementation, and associated comorbidities were retrospectively analyzed and documented in an Excel file. The data from the excel file were statistically analyzed using SPSS 25. For each comorbidity and patient characteristic, homocysteine levels were compared using Independent Samples Mann-Whitney U test.

**Results:** After completing statistical analysis of comorbidities commonly found in our Veteran population, those with statistically significant elevated levels (P-value <0.05) of homocysteine were found to be Hypertension (P-value 0.001), Chronic Kidney Disease (P-value <0.001), Dementia (P-value 0.004), Alzheimer's (P-value 0.018), Peripheral Vascular Disease (P-value 0.046), and male gender (P-value 0.037). Of note, psoriasis was not statistically significant (P-value 0.855).

**Conclusion:** Elevated homocysteine levels are known to be pro-inflammatory, which likely plays a role in their elevation in hypertension, chronic kidney disease, dementia, Alzheimer's, and Peripheral Vascular Disease, necessitating a need to reduce homocysteine levels to improve patient outcomes.