Alzheimer's Disease Distribution in the Northwest in Relation to Microclimates, a Second Year Epidemiological Study

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Since the discovery of Alzheimer’s disease by Dr. Alois Alzheimer in 1906, little attempt has been made to understand this disease spatially. In year 1 of this study, a correlation between Alzheimer’s mortality and climatic regions of the United States was analyzed. The Northwest climatic region had the greatest correlation between Alzheimer’s mortality and high average precipitation. In its present form, this study expands on last year’s suggested correlation. Implementing data mining, death records with Alzheimer’s listed as the underlying cause of death was pulled from the Centers for Disease Control online database from years 1999-2010. The resident population female and over 65 years old, two key Alzheimer's risk factors, were examined. This data was recorded at the county level and grouped according to corresponding microclimates of the Northwest. These microclimates were then compared in ArcGIS to establish a visual reference. Three Kruskal-Wallis tests were performed for each layer of analysis, and all three produced statistically significant differences. Microclimatic region 1, the region with the greatest average precipitation, presented the region most common for Alzheimer’s mortality and number of females per Alzheimer’s death. The results of this two-year study support a correlation between Alzheimer’s disease and different climatic regions, establishing a statistical relationship between microclimates in the Pacific Northwest and Alzheimer’s disease mortality. This study will allow for further investigation of potential environmental irregularities and Alzheimer’s mortality distribution and may be used as a basis for Alzheimer’s disease and environmental study from which to expand upon.

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