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The Role Previous Cytomegalovirus Infection in Subsequent Lymphoma Develompment

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Abstract : Introduction: Cytomegalovirus (CMV) infection is a widespread infection affecting between 60-70% of people in industrialized countries. CMV has been previously correlated with a higher incidence of Hodgkin Lymphoma compared to noninfected persons. Research regarding prior CMV infection and subsequent lymphoma development is still controversial. With limited evidence, further research is needed in order to understand the relationship between previous CMV infection and subsequent lymphoma development. This study assessed the effect of CMV infection and the incidence of lymphoma afterward. Methods: A retrospective cohort study (2010-2019) was conducted through a Health Insurance Portability and Accountability Act (HIPAA) compliant national database and conducted using International Classification of Disease (ICD) 9th,10th codes, and Current Procedural Terminology (CPT) codes. These were used to identify lymphoma diagnosis in a previously CMV infected population. Patients were matched for age range and Charlson Comorbidity Index (CCI). A chi-squared test was used to assess statistical significance. Results: A total number of 14,303 patients was obtained in the CMV infected group as well as in the control population (matched by age range and CCI score). Subsequent lymphoma development was seen at a rate of 11.44% (1,637) in the CMV group and 5.74% (822) in the control group, respectively. The difference was statistically significant by p= 2.2x10-16, odds ratio = 2.696 (95% CI 2.483- 2.927). In an attempt to stratify the population by antiviral medication exposure, the outcomes were limited by the decreased number of members exposed to antiviral medication in the control population. Conclusion: This study shows a statistically significant correlation between prior CMV infection and an increased incidence of lymphoma afterward. Further exploration is needed to identify the potential carcinogenic mechanism of CMV and whether the results are attributed to a confounding bias.

Keywords : cytomegalovirus, lymphoma, cancer, microbiology
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