

Abstract

Oncogenes, pollution, infections, or the dysregulation of the immune system can be triggering factors for leukemias, but there is not a specific factor for acute promyelocytic leukemia (APL).

Discovery of a specific molecular genetic abnormality in a retinoid receptor, have greatly expanded scientific insight about leukemogenesis and have radically altered treatment strategies in this illness. But the lost question is ‘What is the trigger?’

Objective

Investigating the impacts of seasonality in the incidence of APL in our center and its characteristics were the aims of the study.

Materials & Methods

Six-year records of 21 APL patients who were diagnosed and treated in Gülhane Education and Training Hospital from 2015 to 2021 were evaluated retrospectively. Patients were categorized on the basis of the seasons in which they were diagnosed such as: winter (December–February), spring (March–May), summer (June–August), and autumn periods (September–November).

Results

The mean age of the patients was 47.7 years (30–79) M/F: 3/1. Seven patients (33.3%) were diagnosed in winter, 7 patients (33.3%) in autumn, 5 patients in spring (23.8%)%, and 2 patients (9.5%) in summer. There was a significant difference in terms of APL incidence in winter and autumn versus summer.

Conclusion

Seasonal variations in hematologic diseases and leukemias have been largely reported by several epidemiological studies. In contrast to our study, Hassan et al. could not find any seasonal variations in APL. A Brazilian study reported a correlation between rainfall and APL. Timonen hypothesized that viral infections, sunlight deficiency, and cold temperatures could be effective for triggering leukemias. Acute myeloblastic leukemia (AML) showed the highest risk during dark seasons, which can be explained by D vitamin insufficiency. Parallel to this study, we can explain that decreased sun exposure in winter and autumn can trigger vitamin D deficiency and APL occurrence. Similarly, elevated viral infections can trigger leukemogenesis in winter. Supplementation with vitamin D and vaccination against influenza may be beneficial to prevent APL occurrence.

References

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