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Conference Abstract A10

Risk of Developing Malignant Blood Diseases in Individuals Infected With Hepatitis C and B Viruses

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Introduction

The relevance of studying the association between hepatitis C (HCV) and B (HBV) viruses and oncohematological diseases is due to the fact that chronic viral infections play a significant role in altering immune regulation, activating inflammatory pathways, and disrupting apoptosis, which may contribute to the development of malignant blood diseases. Identifying a possible connection between these infections and malignant blood diseases is of great epidemiological, clinical, and social importance. Studying these associations may contribute to more accurate risk stratification, improved patient monitoring, and the development of effective preventive and therapeutic strategies. Currently, there is evidence suggesting a possible link between chronic viral hepatitis B and C and the development of oncohematological diseases. However, the mechanisms of this association remain unclear, and research findings are often contradictory. There is an urgent need for further studies to better understand the pathogenetic links and assess the impact of viral infections on the course and prognosis of malignant blood diseases.

Objective

To assess the associations between HCV, HBV, and the risk of developing malignant blood diseases among patients in Azerbaijan.

Materials and Methods

Medical records of 797 patients with various oncohematological diagnoses at the National Center of Hematology and Transfusion were analyzed:

- Non-Hodgkin's lymphoma (NHL) – 62
- Acute lymphoblastic leukemia (ALL) – 255
- Chronic lymphocytic leukemia (CLL) – 123
- Multiple myeloma (MM) – 69
- Acute myeloid leukemia (AML) – 193
- Chronic myeloproliferative diseases (CMPD) – 95

The number of patients with hepatitis B (HBsAg) and C (anti-HCV) markers at the time of diagnosis was counted. Data on hepatitis B and C infection among primary blood donors from the Central Blood Bank at the National Center of Hematology and Transfusion served as the control. The association between oncohematological diseases and viral hepatitis infections was assessed using relative risk (RR) and odds ratio (OR) with a 95% confidence interval. Differences were considered significant at $P < 0.05$. Statistical analysis was performed using SPSS software.

Results

The data summarized in the table and figure show that there is a direct association between anti-HCV positivity and the risk of developing ALL, CLL, MM, and AML. Hepatitis B was statistically significantly associated only with CLL and MM.

Malignant blood diseases (N=797)	HCV	HBV	RR/OR for HCV (95% CI)	RR/OR for HBV (95% CI)
Non-Hodgkin's lymphoma (N=62)	8 (13%)	4 (6.4%)	11.7 / 13.3 (P=0)	5.27 / 5.56 (P=0.000465)
Acute lymphoblastic leukemia (N=255)	19 (7.4%)	1 (0.4%)	6.76 / 7.22 (P=0)	0.32 / 0.32 (P=0.126205)
Chronic lymphocytic leukemia (N=123)	8 (6.5%)	8 (65%)	5.9 / 6.24 (P=0)	5.31 / 5.61 (P=0.000001)
Multiple myeloma (N=69)	3 (4.3%)	3 (4.3%)	3.94 / 4.08 (P=0.008752)	3.55 / 3.66 (P=0.014048)
Acute myeloid leukemia (N=193)	10 (5.2%)	4 (2.0%)	4.7 / 4.9 (P=0.000001)	1.69 / 1.71 (P=0.145741)
Chronic myeloproliferative diseases (N=95)	2 (2.1%)	5 (5.3%)	1.91 / 1.93 (P=0.179271)	4.3 / 4.48 (P=0.000570)
Control group (N=6277)	692 (1.1%)	769 (1.2%)	-	-

Conclusion

HCV and HBV are associated with an increased risk of several oncohematological diseases, including ALL, CLL, AML, and MM. A possible mechanism involves chronic inflammation and cytokine activation, which promote oncogenesis. The results highlight the need for monitoring patients with hepatitis and conducting further studies to develop targeted prevention strategies.