

Cigarette, Alcohol and Chemical Substance Exposure in patients with Hematological Malignancies

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Abstract: The vast majority of cancers develop as a result of concurrence of genetic susceptibility and environmental factors. Benzene, cigarettes, chemotherapeutic agents (alkylating agents and topoisomerase II inhibitors), chloramphenicol and phenylbutazone are among the most important chemical agents. Ionizing and non-ionizing radiation are among the physical etiological factors of hematological malignancies, mainly AML. A total of 135 patients, who had been diagnosed with hematological malignancy were included in the study. The data were retrospectively collected from the patient files. Smoking and alcohol use, and the chemical exposure of the patients were analyzed. The patients had been diagnosed with acute myeloid leukemia(AML)(24), acute lymphoblastic leukemia(ALL)(11), chronic myeloid leukemia(CML)(13), essential thrombocytemia(ET)(4), polycythemia vera(PV)(5), agnogenic myeloid metaplasia(AMM)(2), chronic lymphocytic leukemia(CLL)(13), hairy cell leukemia(HCL)(3), hodgkin lymphoma(HL)(7), non-hodgkin lymphoma(NHL)(22), multiple myeloma(MM)(17), and myelodysplastic syndromes(MDS)(14). When we analyzed the participants in four categories as acute leukemias (AML,ALL), chronic myeloproliferative diseases(CMPD:CML, ET, PV, AMM), chronic lymphoproliferative diseases (CLPD:CLL, HCL, HL, NHL, MM) and MDS, the smoking status was found to be statistically significantly different between the disease groups ($p=0.032$). The patients in the chronic lymphoproliferative disease group were found to smoke more often. The frequency of alcohol use was seen to be indifferent between the disease groups ($p=0.592$). When the subjects were analyzed with respect to lifelong chemical exposure, the rate of the patients who had been exposed to chemical agents were found to be higher in the CLPD group (33.9%) compared to other groups (8.6% for acute leukemias, 12.5% for CMPD, 21.4% for MDS), and the difference was seen to be statistically significant ($p=0.019$). The significantly higher rates of smoking in the CLPD group suggested that smoking may have a role in development of CLPD.

Table 1. Gender distribution of the cases included in the study according to different diagnoses

	AM L	AL L	CM L	E T	P V	AM M	CL L	HC L	H L	NH L	M M	MD S	Tota l
Femal e	12	6	7	2	2	0	7	3	5	17	11	4	76
Male	12	5	6	2	3	2	6	0	2	5	6	10	59
Total	24	11	13	4	5	2	13	3	7	22	17	14	135

Table 2. Smoking status of the cases according to disease groups

	Never smoked	Smoked for 1-19 years	Smoked for 20 years and above	Total
Acute leukemias	18 (51,4%)	9 (25,7%)	8 (22,9%)	35
Chronic myeloproliferative diseases (CMPD)	17 (70,8%)	1 (4,2%)	6 (25%)	24
Chronic lymphoproliferative diseases (CLPD)	29 (%46,8)	7 (11,3%)	26 (41,9%)	62
Myelodysplastic syndromes (MDS)	10 (71.4%)	-	4 (28,8%)	14