ACETYLATOR PHENOTYPING IN PATIENTS WITH MALIGNANT LYMPHOMAS, USING CAFFEINE AS THE METABOLIC PROBE

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Objective. The study was designed to answer the question whether a particular (slow/fast) acetylator phenotype is a risk for malignant lymphoma patients. Differences in acetylator phenotypes were previously described in urinary bladder and colorectal carcinoma patients compared to controls. Addressing this issue may help understanding the possible role of xenobiotics’ metabolism in the pathogenesis of malignant lymphomas. Caffeine is currently preferred as a metabolic probe due to its noninvasiveness. Design. Case-control study. Setting. Hematology/oncology inpatient unit and outpatient clinic, Ain Shams University Hospitals, Cairo, Egypt; a tertiary care academic medical institution. Participants. Urine samples were collected 4 h after the oral administration of a caffeine-containing beverage to 83 patients with malignant lymphomas and 92 control subjects. Diagnosis of lymphoma was ascertained histopathologically. Controls were matched in terms of age, sex and residence (urban/rural). Measurements. To define the acetylation phenotype, the nanomolar ratio of the urinary concentrations of the caffeine metabolites: acetylamino-6-amino-3-methyluracil and 1-methylxanthine (AAMU/1X) was calculated for every study subject. Results. An excess of fast acetylators was shown in the malignant lymphoma group compared to the control. The odds ratio for malignant lymphoma associated with fast acetylation was 1.304 (95% CI, 0.709–2.398; p = 0.439). Paradoxically, an excess of the slow acetylator phenotype was observed in patients with low-grade non-Hodgkin lymphoma (n = 25) compared to other subjects of the lymphoma group. The odds ratio for low-grade lymphoma associated with slow acetylation was 4.00 (95% CI, 1.316–12.155; p = 0.014). Conclusions. Owing to the small sample size, the association between the acetylator phenotype and malignant lymphomas could not be excluded. However, the study suggests that, compared to other types of lymphoma, low-grade non-Hodgkin lymphoma would be associated with slow acetylator phenotype.

Key words: acetylation, arylamine N-acetyltransferase, caffeine metabolism, leukemia, lymphocytic, chronic, lymphoma, non-Hodgkin, phenotype

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