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WANNEE WANNAPHAHUN : CHROMOSOME ABERRATION IN PERIPHERAL LYMPHOCYTES OF HOSPITAL PERSONNEL OCCUPATIONALLY EXPOSED TO ANTINEOPLASTIC DRUGS. THESIS ADVISORS : SRICHAN PHORNCHIRASILP, Ph.D., SUPAPORN PONGSAKORN, M.S., ARKOM CHEIRSILPA, M.D., 157p. ISBN 974-664-124-7

Adverse effects of antineoplastic drug exposure have been well documented in therapeutically treated patients and proposed as a potential hazard for occupationally exposed populations. Concern stems from growing evidence of mutagenicity, carcinogenicity, and teratogenicity of many of these drugs. Regarding potential risk, many organizations issue handling guidelines for these agents, predominantly usage of a vertical laminar airflow biological safety cabinet and other protective equipments, as well as safe work practices. In this study, the effect of handling antineoplastic drugs was examined by comparing the frequency of chromosomal aberration in peripheral blood lymphocytes of exposed and nonexposed groups. The exposed group was 50 nurses from the oncology department and other departments of different hospitals in Bangkok. These nurses were responsible for handling antineoplastic drugs. Most of the time they used some types of protective equipments but the usage of these equipments varied from nurse to nurse. The control group included 28 nurses and 20 nurse aids in outpatient and inpatient department of different hospitals in Bangkok as well as 2 nursing students. During the experiment, they never had contact with antineoplastic drugs. Subjects completed questionnaires about age, smoking habits, viral illnesses, radiation exposure, coffee and alcohol consumption, diet, past medical and medication use in the past 12 months, occupational history, and exposure to other genotoxic agents. Beside these questions, exposed nurses were also asked about preparation of antineoplastic drugs such as name of the drug, frequency and the last date of preparation, and also the kind of safety precaution applied including their frequency of use. Percentages of metaphases with chromosomal aberrations were significantly higher ( $p < 0.05$ ) in the exposed group ( $1.20 \pm 1.28$  for excluded gaps and  $5.46 \pm 3.31$  for included gaps) versus the control group ( $0.42 \pm 0.61$  for excluded gaps and  $2.82 \pm 3.31$  for included gaps). The detected chromosomal aberration were in the form of chromaid gaps, chromosome gaps, chromatid breaks, chromosome breaks, dicentric chromosomes and acentric fragments. Chromosomal aberration frequencies found in this study were not correlated with age and duration of exposure (in term of number of years preparing antineoplastic drugs). The result indicated the need for adequate protective measures in handling of antineoplastic drugs and the importance of following the applied safety guidelines.