KOMPONEN SISTEM HEMATOPOITIK SEBAGAI BIOINDIKATOR TINGKAT KETERPAPARAN RADIASI PADA PEKERJA / OPERATOR RADIOLOGI

ABSTRACT

Component system hematopoitik as bioindicator exposure radiation level on workers / operator radiology"

Biological monitoring of radiation doses make an important contribution to the estimated cumulative dose of radiation exposure in epidemiological studies, particularly in the case without the presence of physical dosimeter. This research was cross sectional with the aim of Analytical determine the level of radiation exposure (internal dose) in the radiology service by analyzing blood komparteme, including the total number of leukocytes/WBC (White Blood Cel), lymphocytes, monocytes, neutrophils, eosinophils, basofil, total erythrocyte/RBC (Red Blood Cell), PCV (Pack Cell volume), hemoglobin (Hb), thrombocyte. There was no statistically significant differences between blood compartemen variable with age, gender, years of service, frequency of exposure. And there were significant differences between the variable frequency of exposure to the colon in the diagnostic loop, where the number of leukocytes analysis of p (0.041) < p (0.044)α0.05 and hemoblobin < 0.05.α From the results of environmental radiation monitoring of work = 0.37 μSv μSv / h, has met the applicable standard. From the results of research and data analysis we can conclude that the internal dose radiological operators such as decreasing the number of compartments of leukocyte, erythrocyte, PCV (Pack Cell Volume) and the hemoglobin (Hb). Radiation protection system must be supported by radiation protection management system and continual improvement in accordance with the development. Need to know the further development of internal dose in radiology service

Keywords: hematopoitik system components, radiation exposure dose.

SUMMARY

Operating radiology for diagnostic purposes, should be in balance with radiation monitoring program routinely applied to all workers using the radiation dosimeter physics, and monitoring of exposure to light scattering in the working environment. The procedure is meant to be done routinely and regularly review. While the monitoring of aspects of biological dosimeter can be based on biological indicators of damage to biological systems caused by exposure rasiasi on the body. The purpose of this study to determine internal dose in radiology operator, because of less physical dosimeter can rely on, and can not interpret the level of radiological health service workers.

To determine the level of radiation exposure on the operator, the results of the analysis will be compared with workers who are not exposed to radiation. And this analysis was done by taking blood samples to be analyzed further in the clinical laboratory. The analysis includes examination of the blood compartment of the total number of leukocytes (WBC), lymphocytes, monocytes, neutrophils, eosinophils, basofil, Red Blood Cell (RBC), Pack Cell Volume (PCV), hemoglobin (Hb), Platelet impedance method and Photometri with using SYSMEX KX-21.

From the analysis results will be compared with the control groups, to determine whether the differences are closely related to work performed by the radiology service. Risk factors that could affect the results of blood analysis in the operator compartment includes: age, gender, years of service, frequency of radiation exposure and exposure to high frequency as a diagnostic operation with colon in the loop. To ensure that the difference was significant or not, then analyzed with the statistical data of different test or T test Test.

From the analysis of blood compartment that includes the total number of leukocytes/WBC (White Blood Cell), lymphocytes, monocytes, neutrophils, eosinophils, basofil, total erythrocyte /RBC (Red Blood Cell), PCV (Pack Cell Volume), Hb (hemoglobin), thrombocyte between the groups exposed to the general controls no significant difference, but results from individual analysis, there are a few respondents who declined the blood compartment. While the frequency of exposure variables with a colon in the diagnostic loop on some respondents there was a significant difference. From the results of analysis of these data include the number of leukocyte and hemoglobin (Hb). And this can be believed that the level of radiation exposure on the service can be in interprestasikan on the results of hematological examination. Where is the stretcher on internal dose can be answered through the reduction of the blood compartment that includes decreasing the number of lymphocytes, erythrocytes, PCV and hemoglobin (Hb).

From the results of analysis of the decrease of the blood compartment, it must be known to some other factor, the examination and measurement of scattering light exposure in the workplace. From these results it can be concluded that the level of exposure to light scattering in the work environment amounting to 0.37 μSv / clock, and this value meets the standards set by the Decree of the Head of Nuclear Energy Supervisory Agency Number: 01/Ka-BAPETEN/V-99. Where is the boundary value a work environment that allowed dose is 25 μSv / Hr. Thus it can be said that the system of radiation protection in radiodiagnostic installations are in compliance with applicable standards.

In a study has concluded that internal dose can be interpreted in the operator on the results of the blood compartment is less than the normal value range, so that the radiation protection system is not fully capable of providing protection to workers, because it is still necessary in support with other protection systems and control systems for hazard management use of ionizing radiation.