

Chronic effects of hair, blood and testis in black mouse with neutron Irradiation by lying flat pose

Ki-Jung Chun, Bo-Kyung Yoo, * Bong-Hee Kim

Korea Atomic Energy Research Institute, * Chung Nam National University,
college of Pharmacy

The purpose of this study is to investigate the biological effects in black mouse by neutron irradiation at HANARO reactor in KAERI. Neutrons readily penetrate the charged field of an atomic nucleus because they are electrically neutral. And so it can fight cancer with the radiation released when an atom of the element boron absorbs a neutron. The main patient in BNCT facility is brain cancer and sometimes skin cancer in foreign countries until now. Therefore, mice were laid flat and so irradiated at the direction of the front. Six-week-old black male mice were irradiated with neutron (flux: 1.036739×10^9) for 1hr or 2hrs. After irradiation, life span and hair color in mice were investigated and then on day 80 the mice a part were sacrificed for measuring the blood cell ratios of blood and weight, volume and sperm count of testis. All experimental mice survived over 90 days after neutron irradiation. In hair, mice with neutron irradiation for 2 hrs only were changed white color on center of the back. In blood, WBC, RBC, Hb, Hct, MCH, MCV and MCHC was almost normal but platelet was half value compared to the control group. In testis, testis wt. in experimental groups were almost same but testis volume and sperm count were reduced a little compared to the control group. In conclusion, the mice with neutron irradiation by lying flat pose for 1hr or 2hrs without administration of boron compounds were not reduced the life span. Among blood cell, platelet were not recovered and the others were recovered after long time with neutron irradiation. Black mice hair color on the center of the back with irradiation of high dose in this experiment were changed white color and testis volume and number of sperm were reduced by chronic effect in response to neutron irradiation.