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Intramuscular cysts were found spontaneously in a 3-year-old cynomolgus monkey used for 6-week toxicity study. The animal belonged to the control group. It didn't exhibit any morphological and behavioral defects, and had abnormal lesions at necropsy. In the histopathology, there were no specific lesions except that the two cysts, wrapped by thin wall, were located in the muscle fiber of femoral muscle and full of dense substances. There was no inflammatory reaction around cysts. They are considered to be sarcocystis, in view of its typical morphology and location.

Key words : Sarcocystis, Cynomolgus monkey, Toxicity study

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**Quickly Simple Biodosimetry to
Estimate the Absorbed Dose of
Victims in Accidental
Multi-Casualties**

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Quantification of the biologically relevant dose is required to establish cause and effect between radiation dose and important biological outcomes in. Most biodosimetric studies of unanticipated radiation exposure fail to establish cause and effect because researchers have not been able to construct a valid quantification of dose for many victims in multi-casualties. However, there is no effective technique meets all the requirements of an ideal biodosimetry.

To evaluate if the apoptosis induction assay could be used to estimate an early dose prediction of the whole body or a part of it after accidental radiation exposure within 12 h, we examined apoptotic lymphocytes after ⁶⁰Co -rays in the range of 0.25 to 1Gy.

The incidence of apoptotic cell death rose steeply at very low doses up to 1Gy, and radiation at all doses trigger rapid changes in peripheral lymphocytes. These data suggest that apoptosis may also play an important role in homeostasis of radiosensitive target organ by removing damaged cells.

The curve of dose-effect relationship for the data of apoptotic lymphocytes was obtained by the linear-quadratic model. The dose-response curves were linear-quadratic for -rays, and a significant dose-response

relationship was found between the frequency of apoptotic lymphocyte and dose.

These data show a trend towards increase of the numbers of apoptotic lymphocytes with increasing dose. In addition, there were significant peaks on apoptosis induction at 4 and 6h after irradiation, and the morphological findings of the irradiated groups were typical apoptotic cells that were hardly observed in the control group.

Thus, apoptosisinduction assay in human peripheral lymphocytes could be a useful biological technique to evaluate radiosensitive target organ injury. Since the apoptosis induction assay is simple, rapid and reproducible, it will also be a good biological technique for the early dose prediction of many victims simultaneously inaccidental multi-casualties.

Key word: Apoptosis induction low dose; early dose prediction; peripheral lymphocyte; ionizing radiation; multi-casualties; biosimetry

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Mini-pig Model Simulating Radiation Accidents for Evaluation of Acute Radiation Syndrome

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Introduction

Absence of a realistic model of accidental irradiation makes difficult the evaluation of new therapeutic strategies. There have been some limitations that the findings of rodents may be different from humans and non-human primates are expensive for intensive studies. Purpose of this study is to evaluate whether mini-pig radiation model would be corresponding to humans and acceptable for evaluating acute radiation syndrome and therapeutic trials for victims of radiation accidents. Here, we clinically and pathologically evaluated new animal model using mini-pigs that has physiologically and functionally close to humans, with special reference to hematopoietic and intestinal changes that are the most important cause of death in radiation accidents

Methods

Minipigs (6month-old, body weight 20kg) were irradiated from X-ray accelerated by microtron (simulated dose 2Gy, 4Gy, 7Gy and 12Gy) in whole body. The simulated dose was compared to radiation dose detected by TLD. Blood cell count and bone marrow biopsy findings were serially examined by