

**REPORT  
ON THE PILOT PROJECT**

**" LEUKEMIA- LYMPHOMA "**

**QUARTER VIII**

**( time period from 1.08.1999 to 31.10.1999 )**

## DOSIMETRY

The main objective of the dosimetric group in the 8<sup>th</sup> quarter of the Project was preparation of the Final Phase I report. The form and substance of this report was thoroughly discussed with American colleagues during several joint meetings. To perform the dosimetric part of the report it was necessary to complete EPR measurements and intercalibration as well as finalize testing and comparison of SEAD method.

According to the decision of the International Dosimetric group the EPR method was considered to be the “gold standard”, thus it was necessary to have retrospective EPR dose estimations for several dozens of subjects, namely military reservists (so-called “partisans”). 17 samples corresponding to the required group were found in the SCRM Bioprobe Bank and measured at the modified EPR equipment. Unfortunately, it was impossible to accomplish this work as well as to complete an intercalibration between SCRM and Center of Applied Dosimetry, USA, because of the EPR instrument’s breakdown. During the Quarter 8, intense negotiations with BRUKER were undertaken in order to find the way for fixing the failed unit (MW bridge). Ultimately, it was concluded that BRUKER will cover all expenses related to repair of the unit (which is a subject of factory warranty) and personal delivery of the unit to the BRUKER factory in Karlsruhe, Germany. The visit of SRCM representative to Germany was scheduled on the second half of January 2000. The visit of ER dosimetrist (Dr.S.Sholom) will be devoted to personal transportation of the unit to the factory and supervision of the repair, and work in the BRUKER demo lab in order to test new hardware features, recently developed by BRUKER. By this reason, the intercalibration with the Center of Applied Dosimetry was shifted to the second quarter of 2000.

During this quarter, the testing of SEAD method and its comparison with EPR and DEA methods had been performed and was reported at a meeting of the International Dosimetric group held in October 1999 in Lyon. Testing of SEAD dose assessments done by two experts for liquidators and their proxies showed good coincidence both between experts and between cases and their proxies. As may be concluded from the results of the comparison, EPR dose estimations for liquidators sent on mission were systematically higher than doses reconstructed by SEAD method. At the same time, for subgroup of partisans EPR doses turned to be lower than SEAD estimates. Therefore, it was decided to modify SEAD and to continue testing of this method by extra 120 cases (including partisans, their proxies and probably some professional workers). The results will be presented at the next meeting of International Dosimetry group, which is planned to be held at the end of March 2000. After October'99 Lyon meeting 17 partisans and 17 proxies were interviewed in course of field work in Poltava and Kharkov Oblasts. Modification of SEAD and DEA method and testing them on new questionnaires are continuing in the first quarter of 2000.

The number of tooth samples of the Bioprobe Bank was increased by probes from Poltava (196 pieces), Kharkiv (73), Zaporizhzhya (14) Oblasts, and Kyiv city (98).

As a result of comprehensive discussions and mutual work, American and Ukrainian dosimetrists have prepared a thorough report of fulfilled work as well as a prospective plan of future study that were included in general Final report of Phase I and then approved at a meeting in Bethesda. Besides, during Quarter 8 a detailed working plan on the first nine months of 2000 was elaborated.

According to the research plan on milestone 16 the FISH cytogenetic analysis of 19 persons with different absorbed doses of gamma irradiation received under the liquidation of the Chernobyl accident consequences had been fulfilled.

For dose reconstruction only the frequency of reciprocal translocations and insertions had been used.

All persons examined differed essentially at the degree of radioinduced cytogenetic effect ( the frequency of stable chromosome aberrations ) with depended on absorbed radiation doses.

During the 8<sup>th</sup> quarter all FISH results ( for 49 liquidators ) were critically analysed, pooled and compared with the EPR dosimetry data which considered as “ golden standart “.

The final report about FISH dosimetry in liquidators examined have been prepared and discussed at the meeting in Washington ( November, 15-17,1999 ).

The working plan for the futher work ( Phase II of Leukemia Project ) in the field of FISH dosimetry ( validation of the official doses above 0.3 cGy) had been prepared.

## **EPIDEMIOLOGY AND HEMATOLOGY**

Proceeding from the plan for the additional 6 months to the Pilot Phase the hematological and epidemiological groupa had to accomplish some tasks, take part in the discussion and designing the Final report, develop plan of the work for the intermediate stage (for 9 months) and prepare draft of the Phase II study.

1. The work on the **Cohort file formation** was prolonged. Archive records were extracted and added to the main file (as for Dnipropetrovsk, Kiev, Kharkiv oblasts and city of Kiev)

## **2. Final Report preparation**

- proposals to the Final Report Draft as for results of the Epidemiological tasks performance and its description were made and discussed with American working group through the electronic communication and while the joint working meeting held in Kiev in September 1999.

Details of the results were reflected in the Appendices attached to the Final Report.

- the Final Report Draft was discussed and agreed in the Ukrainian Working group for the purpose of preparation to its final adjustment by the joint Ukrainian-American Working Group

- responsible persons from Epidemiology and Hematology groups participated the joint Ukrainian-American Working Group meeting held in Bethesda ( of November, 15-17, 1999) to discuss the results of the Phase I Protocol performance and make the proposals and recommendations for the future study.

## **3.Preparation of proposals to the Phase II Modified Protocol**

- the proposals were prepared and discussed by the electronic way to make an input to the Protocol Draft.

- tasks to be performed by the Epidemiology group and jointly with hematologists and dosimetrists were identified. Necessary personal, budget, training and equipment were preliminary estimated and discussed in the Ukrainian Working group.

According to the task 18 the medical records of 8 clean-up workers who developed different types of leukemia, from Chernigiv and Kharkiv oblasts, were selected. In the laboratory archive the diagnostic materials for 4 patients were found, the search for the rest patients are in progress.

The medical records and bone marrow sample from the patient suspected for non-Hodgkin's lymphoma or CLL, were received. The bone marrow samples were cryopreserved and stored in freezer at  $-70^{\circ}\text{C}$ . After examination the patient was diagnosed with NHL.( Task 27 )

The oblasts institutions were the listing of cases of the diagnoses under study in general male population will be performed were preliminary defined. These are as follows:

- the oblast hematological departments
- RCRM
- The oblast dispensary departments for the medical support of Chernobyl victims

**Possible sources** of medical records and biological material for the leukemia cases in liquidators defined in all oblasts involved in the study were preliminary determined. These are as follows:

- Oblast hematological center consisting of the oblast hematological department and polyclinic;
- The oblast oncological dispensaries;
- The Institutes of Radiology in Kharkiv;
- The Institute of Oncology and Radiology in Kiev
- The Institutes of Hematology in Kyiv;
- RCRM;
- The oblast dispensary departments for the medical support of Chernobyl victims;
- The review panels involved in establishing radiation-related diseases;
- Pathomorphological departments of the oblast hospitals;
- Register offices