

4. Importance of personal protective equipment in interventional radiology and cardiology and their innovative applications

Principal investigator: Mgr. Darina Budošová

Co-investigators: doc. RNDr. Martina Horváthová, PhD., MPH

PhDr. Zuzana Bárdyová, PhD.

Interventional radiology is a specific medical field, which uses ionizing radiation (IR) for diagnostic and therapeutic procedures. The effects of IR on health of an interventional radiologist and cardiologist are currently not very well-known. The most commonly described health risks include development of radiation-induced cataracts, left-sided tumors, premature vascular and neurocognitive aging. For these reasons, the interventional radiologists are forced to wear a personal protective equipment (PPE). Standard PPE being used is a lead apron. The massive construction of these lead aprons causes an increased load for the musculoskeletal system, what can lead to an unexpected career end of the interventional radiologist. Based on these facts the Zero-Gravity suspended radiation protection system (ZG) was developed to exclude the load for musculoskeletal system and simultaneously provides more effective protection against the IR because it covers a larger part of the human body than standard PPE. The advantage of ZG is a special design which provides a safe protection for the whole head part in all working positions, without visibility or movement limitations while in use. As the number of interventional procedures is constantly rising, the aim of the study of this project is to monitor organ dose and effective dose of interventional radiologist and cardiologist by using thermoluminescent dosimeters. Based on the results, the IR capture will be evaluated to compare the efficiency of both PPEs - ZG and standard lead apron.