Contribution ID: **145** Type: **Poster**

ASSESSMENT OF EYE LENS DOSES OF INTERVENTIONAL RADIOLOGY AND INTERVENTIONAL CARDIOLOGY WORKERS IN THE PERIOD OF 2016-2020

In 2011 the International Commission on Radiological Protection (ICRP) published a statement on tissue reactions(1) and has recommended reducing an equivalent dose limit for the lens of the eye from 150 mSv per year to 20 mSv per year, averaged over defined periods of five years, with no annual dose in a single year exceeding 50 mSv(2, 3). In 2014 reduced annual occupational equivalent dose limit to the lens of the eye was adopted in the IAEA Safety Standards(4). This new provision was adopted in Lithuanian legislation in 2015. The new dose limit has become very important for interventional radiology (IR) and interventional cardiology (IC) workers because this category of workers receives the highest occupational exposure compared to other medical staff.

Routine monitoring and equivalent dose assessment of the dose to the lens of the eye should be undertaken if the provisional estimation indicates that the annual equivalent dose to the lens of the eye could exceed a dose of the order of 5 mSv(2). The dose to the lens of the eye can be assessed by measuring personal dose equivalent Hp(3) with the eye lens dosimeter at the level of the eye or Hp(10) with the whole body dosemeter above the lead collar. Routine monitoring using the eye lens dosemeter should be undertaken if the provisional estimation indicates that the annual equivalent dose to the lens of the eye could exceed a dose of the order of 15 mSv. The monitoring period should be reduced to one month as well.

Based on international studies (5, 6, 7, 8) the recommendations for the assessment of the equivalent dose to the lens of the eye were developed and approved in Lithuania in 2016. According to these recommendations, eleven Lithuanian hospitals assessed the doses of the lens of the eye and annually submitted them to the National Dose Registry. In the period of 2016–2020, the average annual equivalent doses of the lens of the eye were 2.2-4.6 mSv for IR and IC physicians and 0.6-1.3 mSv for IR and IC nurses. The maximum annual equivalent dose of the lens of the eye was 18.5 mSv for IR physician and 8.1 mSv for IR technologist. In the period of 2016–2020, the maximum annual equivalent doses of the lens of the eye for IR and IC physicians at 11 Lithuanian hospitals are presented in Figure 1.

The results of this study showed that the new limit of the lens of the eye for IR and IC workers was not exceeded. The maximum annual equivalent dose of the lens of the eye in 2020 was about 40 percent lower than in 2016. This shows that operators follow the principle of optimization and adequately ensure radiation protection of IR and IC workers.

Name of Member State/Organization

Radiation Protection Centre, Lithuania

Speakers affiliation

Radiation Protection centre

Speakers email

ausra.urboniene@rsc.lt

Authors: Ms DACYTE, Kornelija (Radiation Protection Centre); Mr JULIUS, Ziliukas (Radiation Protection Centre); Ms URBONIENE, Ausra (Radiation Protection Centre)

Presenter: Ms URBONIENE, Ausra (Radiation Protection Centre)

Session Classification: Session 2. Monitoring and dose assessment of occupational radiation exposures

Track Classification: 3. Monitoring and dose assessment of occupational radiation exposures