

Risk of radiation-induced cataract for interventional cardiologists: results of the O'CLOC study

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Interventional cardiologists are exposed to X-rays during their occupational activity. This exposure may induce early eye lens opacities known as radiation-induced cataracts, in particular posterior subcapsular cataracts. The O'CLOC study (Occupational Cataracts and Lens opacities in interventional Cardiology) was performed in France to test the existence of an increased risk of cataracts among interventional cardiologists.

O'CLOC study is a cross-sectional multicenter study including an exposed group of interventional cardiologists – ICs – and a comparable unexposed group of non medical workers. Individual information, including risk factors of cataract (age, diabetes, myopia, etc. ...) were collected during a telephone interview. A specific part of the questionnaire focused on occupational history in cardiology and procedures description (kind, frequency, use of radiation protection tools) in order to retrospectively assess cumulated eye exposure of ICs. All participants had a clinical eye examination performed by ophthalmologists working in the same centre based on the international standard lens opacities classification – LOCS III – that allowed screening of type (nuclear, cortical or posterior subcapsular) and stage of cataracts.

The study included 106 ICs (mean age=51±7 yrs.) and 99 unexposed people (mean age =50±7 yrs.). For ICs, mean duration of activity was 21 years and eye lens dose cumulated during occupational life in cardiology ranged from 25 mSv to 1650 mSv (mean=454 ± 369 mSv). There was no significant difference between both exposed/unexposed groups in terms of sex ratio, BMI, smoking status, diabetes, myopia, corticosteroids use. Regarding nuclear and cortical lens opacities stage ≥1, no significant difference was observed: 61% for ICs vs. 69% for unexposed group, p=0.23, and 23% for ICs vs. 29% for unexposed group, p=0.29, respectively. In contrast, posterior subcapsular lens opacities (stage≥1) were significantly more frequent among interventional cardiologists (17% vs. 5%, p = 0.006), corresponding to a crude OR=3.9 [1.4 – 10.9] which remained significant even after adjustment for age, sex, BMI, smoking status, diabetes, myopia and corticosteroids use (OR= 3.8 [1.3 – 11.4], p=0.015).

A significant excess risk of posterior subcapsular cataract was observed in this study for interventional cardiologists and it is highly recommended that cardiologists use protective equipment against X-rays and wear lead glasses.