We are passing through an era wherein it is certain that the currently accepted threshold for radiation cataract is no longer valid. Radiation cataract has, to date, been considered a deterministic effect with threshold. The International Commission on Radiological Protection (ICRP) has published threshold values for detectable opacities of 5 Gy for chronic and 0.5-2.0 Gy for acute exposures. A number of studies in staff involved in interventional procedures, in particular cardiology and other radiation exposed populations, including astronauts, atomic bomb survivors, X-ray technologists and clean-up workers in Chernobyl, have indicated that there is an increased incidence of lens opacities at doses below 1 Gy. The higher workload that is typical now in many cath labs, a lack of training in radiation protection and non-availability or non-use of radiation protection devices can result in doses to the eye lens that are high enough to cause lens injuries. International Atomic Energy Agency (IAEA) had launched a project to test the eyes of interventional cardiologists and support staff and results have been published in two papers in 2010. Further there have been publications in 2010 on the efficacy of various shielding strategies for protection of the operator's eyes in the interventional suits. Leaded glasses, scatter-shielding drapes and leaded shields were evaluated in various combinations and in different (characteristic) operator positions. It is reported that the use of leaded glasses alone reduced the lens dose rate by a factor of five to 10, while scatter-shielding drapes alone reduced the dose rate by a factor of five to 25. Using both eye-shielding implements together reduced the dose rate by a factor of 25 or more, and always proved more protective than either used alone.

The talk will review the basic information about radiation catactogenesis, epidemiological information and results of recent studies.

Learning Objectives:

1. To understand the basic information about radiation cataractogenesis
2. To understand the efficacy of protective tools
3. To become aware about the likely changes in current recommendation that may be brought up by international bodies such as the ICRP.