

International Conference & Exhibition on

Clinical Research Dermatology, Ophthalmology & Cardiology

5-6 July 2011 San Francisco, USA

## The measurement of corneal photodamage

Cestmir Cejka Charles University, Czech Republic The cornea is directly exposed to the environment and due to ozone depletion to the penetration of the increased UVB radiation.We developed the method for the evaluation of corneal photo damage in a rabbit irradiation model evaluating corneal UVinduced damage according to changes in corneal hydration (by measurement of central corneal thickness using an ultrasonic Pachymeter) and changes in corneal light absorption detected spectrophotometrically with specially ingeneered inserts for measuring the samples

in a cuvette. This spectrophotometrical method enable us to distinguish also corneal changes other than changes in corneal hydration, evaluated by central corneal thickness. These changes include corneal disorders, such as corneal neovascularization, infiltration of the corneal stroma by inflammatory cells and an increase in protein content, which contribute to the more pronounced corneal transparency and hence increased corneal light absorption. Using this method it was found that already one irradiation of the rabbit cornea with a dose equivalent to 2.5 hours exposure to UVB rays reaching the human cornea from sunlight significantly changed corneal hydration and light absorption. Thus even a short stay in sunlight is potentially dangerous to the human eye. The spectrophotometrical method also showed that an UVB absorber (actinoquinol) combined with hyaluronic acid in eye drops significantly protected the rabbit cornea against UVB evoked damage corresponding to 5 hrs exposure of the human cornea to UVB rays from sunlight. Furthermore, the spectrophotometrical method proved to be useful for the evaluation of other toxic effects to the cornea applied to the corneal surface.

## Biography

Cestmir Cejka – Masters (Dipl.-Ing.) in Applied Mechanics, Biomechnics (with honours) and Biophysics, Prague Technical University and Charles University in Prague. Employment : 2nd Medical Faculty, the Eye Clinic for Children and Adults and The Institute of Experimental Medicine, Academy of Sciences of the Czech Republic in Prague. He cooperates with the Department of Medical Biophysics and Informatics, 3rd Faculty of Medicine in Prague, with the Institute of Macromolecular Chemistry, Academy of Sciences of the Czech Republic in Prague and Laboratoires Thea, Clermont-Ferrand, France. He has published 17papers in reputed Journals (two papers are under reviewing). He has one patent application.