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Data analyses with ImageJ software in diabetic retinopathy, by processing the OCT images

The study is based on OCT (Optical Coherence Tomography) images resulting from investigation of 24 patients (with a total of 33 eyes) with non-proliferative diabetic retinopathy and of 19 patients (with a total of 26 eyes) without diabetes mellitus as control group. Patients' age was between 43 and 92 years old, with a mean age of 66.4 years for first group, and a mean age of 67.6 years for the second one. From this large group, after the first data evaluation, we selected patients aged 40 to 65. We evaluate daily each patient, at 9am, 12am, 3pm and 6pm, through glycaemic index level and OCT investigation using Macular Cube 512x128 images acquisition type. In the same time, we made specifically measurements of ISel (photoreceptor inner segment ellipsoid band) layer thickness using ImageJ soft. We analysed comparatively data given by OCT device and those obtained through direct thickness measurements for three macular zones: one central (foveola) and two circulars (para-foveola and peri-foveola), having 1mm, 3mm, respectively 6mm in diameter.

We concluded that age and time of the day are significantly factors that influence the diabetic retinopathy. We also suggest this method as further investigation tool mostly for patients at the beginning of illness discovering, in order to diminishing and even stopping its evolution.

Speaker Biography

Daniela Moraru is completing her PhD studies in Bio-photonic and Optical Medical research fields at Politehnica University, Bucharest, within Academic Centre for Optical Engineering and Photonics, working also as Physics teacher. She graduated Physics Faculty, being specialized in Biophysics. She has several publications and presentations regarding some aspects of glycaemia influence on contrast sensitivity and on retinal thickness from bio-photonic point of view.

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