As poster

Fluorescence diagnosis and photodynamic therapy of pterigia using 5-aminolevulinic acid.

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Background: Pterygia can vary from small, atrophic quiescent lesions to large, aggressive, rapidly growing fibrovascular lesions that can distort the corneal topography, and, in advanced cases, they can obscure the optical center of the cornea. However, no reliable medical treatment exists to reduce or even prevent pterygium progression.

Purpose: To assess the features of 5-ALA-induce PpIX fluorescence in pterygia guidance for photodynamic therapy (PDT) possibility studying.

Materials and methods: A total of 8 pterygium lesions in 7 patients were investigated. All patients received 20 mg/kg of body weight of Alasens (5-ALA, producer FSUE “SSC “NIOPIK”, Moscow, Russia) orally 4 h prior to PDT. PpIX fluorescence was detected using a non-invasive spectroscopy system. Fluorescence emission spectra were measured under 632.8 nm excitation. Also we used fluorescence images for the assessing of the features of autoflourescence and 5-ALA-induced fluorescence in different parts of pterygium. For the fluorescence imaging a blue light source (390, 415 и 433 nm) was used. In PDT pterygia were illuminated with narrow-band red light (635 nm) at a light dose of 50-80 J/cm2.

Results: We identified 2 groups of pterygia with high and low intensity of 5-ALA-induced fluorescence. Low values were observed in pterygium with slow growth and no signs of activity. In these cases, there was predominance of blue-green fluorescence in pterygium body. All patients experienced a partial regression and reduction of vessels caliber in pterygium fibrovascular tissue in 7-10 days after PDT.

Conclusion: Our study finds it feasible to use PDT (Alasens) as an effective treatment of patients with pterygium lesions. This work was supported by Moscow City Government.