

## Summary

The aim of the study: The study is divided into two parts, retrospective and prospective. The retrospective part is focused on effectivity of transpupillary thermotherapy (TTT) on stabilization of visual acuity in patients with juxtafoveal and subfoveal choroidal neovascularisation (CNV) in age-related macular degeneration (ARMD). It demonstrates reduction of leakage from CNV after the treatment, documents reduction of retinal edema in macula and apposition of neuroretina or retinal pigment epithelium (RPE) after the treatment.

The aim of the prospective part is to demonstrate the preservation of best corrected visual acuity (BCVA) after therapy compared to visual acuity at the beginning of the study, document the improvement fluoresceine angiography (FAG) and optical coherency tomography (OCT) findings after treatment, determine average treatment session count necessary to stabilization of patient's status, tell the difference in effect between occult and classic CNV, document the effect of TTT over the activity of fotoreceptors and influence of the therapy over the quality of life.

Patients: The retrospective study is evaluating 52 eyes of 46 patients with exsudative form of ARMD, who were treated and observed at the Eye Clinic University Hospital in Hradec Králové. The average period of monitoring was 25.6 months.

The prospective study, which was carried out at the same department, is evaluating 40 eyes of 39 patients with the same diagnosis. The average period was 11.4 months.

Methods: The patients were treated by diode laser IRIDIS, whose wave length emission is 810 nm. The finding after the treatment was documented by BCVA, FAG, OCT and electroretinography (ERG). The Wilcoxon Signed Ranks test was used for detection of the statistic significance and to compare the parameters in each time periods. The Kruskal-Wallis test was used to compare the results of subgroups.

Results: Final BCVA of retrospective part was improved in 6,7 %, stabilised in 60 % and decreased in 33,3 % 3 years after the treatment. The FAG finding was improved in 79.5 % ( $p \leq 0.001$ ) after 12 months of the treatment. Reduction of neuroretinal oedema, ablation of neuroretina or RPE was detected by OCT in 79 % ( $p \leq 0.012$ ) 18 months after the treatment.

Final BCVA of prospective study was improved in 13,7 %, stabilised in 40,9 % and decreased in 45,4 % 12 months after the treatment. The FAG finding was improved

in 80.9 % ( $p= 0.006$ ) after 12 months of treatment. Reduction of neuroretinal edema, ablation of neuroretina or RPE was detected by OCT in 75 % ( $p\leq 0.028$ ) 18 months after the treatment.

We demonstrate the influence of TTT not only on CNV, but also on photoreceptors by documenting the latency extension and amplitude reduction in electroretinography (ERG) answers. Only 5 % of patients complained to deterioration of their life quality one year after treatment.

During the retrospective study we detected some degree of RPE atrophy in 28 eyes (53.8 %). Choroidal atrophy related to laser spot was found in 10 cases (19.2 %). There were no complications during the patient's treatment.

In prospective study the RPE atrophy was found in 22 eyes (55 %). The atrophy after the laser treatment was found in 4 eyes (10 %).

Conclusion: Final visual acuity is to a certain extent limited by creation of chorioretinal atrophy and by subretinal fibrotic scar. However, certain atrophy of RPE is mostly the part of patient's status already before the laser treatment. The OCT and FAG findings document stabilization of the disease after the treatment.