

UNIVERSITY OF MEDICINE AND PHARMACY OF TARGU MURES

**EFFECTS OF TRANSCLERAL
CICLOPHOTOCOAGULATION IN ADVANCED PAIN
OF GLAUCOMA**

SUMMARY

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Targu– Mures, 2012

This work consists a general and a special part.

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In the general part I described different types of laser used in medicine, laser – tissue interaction mechanisms and I described in detail the tight bound between lasers and glaucoma disease.

In the special part I pointed out the work hypothesis, I related about the clinical study, I wrote about protection measures in ophthalmology. I completed my work with an experimental study applied on animals – rabbits – in order to have a much clearer image of the laser effect on tissues. I presented the benefic effect of the TS - CFC on painful glaucoma in the conclusions.

The objective of the work is to observe the effect of a laser therapy which has provided me rich experience in the last years and which solves very quickly and definitely the pain problem caused by the secondary glaucoma, it also does not affect the visual acuity, avoiding the enucleation of the affected eye, which is a mutilating surgery for the patient.

The work includes aspects referring both to clinical image revealing a destructive pain for the patient - the elective treatment of the disease leading to a dramatic decrease of the intraocular pressure – and the morphopatological description of the changes made by the laser.

Material and method. Between 2001-2009 a number of 105 TS - CFC were applied to 96 patients using the diode laser IRIS AcuLight SLX, equipped with a scleral applicator, having a power of 1750-2000 mW, with a spot diameter of 500 μ m and the period of 1,8-2,0 seconds. Using the scleral applicator I applied 23-25 impacts on 180 degrees above or below at 1.5 mm far from the corneoscleral limbus. I disposed the impacts close one from another. It was always noted where impacts were applied, on the superior or inferior side, so as in case of a possible new intervention the ciclophotocoagulation shall be applied on the reverse side.

Postoperative examinations were performed at the following intervals: 1 month, 3 months, 6 months and 1 year after the procedure.

During these examinations the presence/absence of the ocular pain, the visual acuity and the intraocular pressure were observed.

Histopathological examination was performed only for to 2 patients, that is only for those who got enucleation. That is why I considered it useful to complete my work with experiences on animals.

Results. The average age of the patients was 63,63 years old $\pm$ 15,69 SD, 15 years old minimum, 91 years old maximum, 68 medium. The high prevalence of the glaucoma in advanced painful stage was registered in the 5th, 6th and 7th decade.

The present study reveals that the painful glaucoma was caused firstly by the neovascular glaucoma 55,23% (58 TS - CFC) determined by complete or partial occlusions of retina central vein and of diabetic retinopathy, followed by the primary open-angle glaucoma (20,0%) and by the primary closed-angle glaucoma (5,7%) or by a mixed mechanism in a low percentage.

After applying TS - CFC, for 89 patients the pain disappeared starting with the first postoperative day for other 8 the pain relieved. In most cases the pain ceased at analgesic administered per os. I remarked that pain persisted but with a lower intensity at those patients to whom TS - CFC was repeated.

Intraocular pressure decreased significantly after TS - CFC and the visual acuity remained unchanged for 89 patients and decreased for 7 patients. I did not meet any major complications after the surgery.

Conclusions. This procedure is mostly used in order to eliminate or diminish pain, decreasing intraocular pressure.

I consider that at present transcleral cyclophotocoagulation is the best laser method in painful glaucoma treatment. This procedure decreases intraocular pressure with more than 30 mmHg, removes unbearable pain in 84% of the cases, does not change visual acuity in 93% after treatment.

The great advantage of this method from the patient's point of view is that he can keep his eyeball, thus avoiding a mutilating surgery.

Key words: TS-CFC = transcleral cyclophotocoagulation, corneoscleral limbus, painful glaucoma, neovascular glaucoma, open-angle glaucoma, closed-angle glaucoma, intraocular glaucoma.