

## **Treatment considerations – VALON multispot laser new models (2014)**

### **FOCUS**

Each user must have the oculars set for their personal refraction, must be in parfocality with retina. If not in focus, uptakes are not equal and can cause too heavy burns.

### **PATTERNS**

Shapes of patterns are chosen because of the eye curvature - the same energy delivery for every spot. Appropriate patterns must be chosen (small for periphery, macula, etc.). Full pattern must be visible in the slit.

### **PERIPHERY**

The full pattern and the retina must be seen in focus before delivering the pattern.

Use double arc or smaller patterns (3x3 or 2x2) and closer spacing.

ALWAYS LOWER THE POWER to avoid puncturing Bruch's membrane.

### **TREATMENTS**

**ALWAYS start with single spot option to find the proper power level.**

**PRP for neovascularization** – exposure time 20 msec. Spacing on level 0.5 – 0.7.

Possible to be done in one or two sessions instead of 3-4, recommended 2 sessions. For panretinal photocoagulation treated with VALON laser using 20msec pulses and 400 microns spots (at the retina), minimum 50% more burns should be delivered to achieve the same therapeutic outcome. If one considers 1600 spots to be the average complete treatment for proliferative diabetic retinopathy with conventional treatment, then minimum 2500 spots should be delivered with VALON laser when set in the multispot mode with short pulse duration. The number of spots can reach 4000 if necessary (1000 per quadrant).

Squares, triangles, circle or *triple arcs (optionally, not recommended for far periphery)*

Use Ocular Mainster 165 or Volk HRWF/Volk Superquad, especially for far periphery and 200µm spot (400µm to retina)

Very light burns!

Pattern selection: consider pigmentation, media opacity and place (periphery etc.) All settings for mid-periphery

- Clear eye: start on VALON laser at 120mW/20msec, probably up to 180 - 200mW/20msec
- Cataract - 2 grade (medium) and medium opacity  
If conventional laser settings are 200mW/100 msec, start on VALON laser at 250mW /20msec, probably up to 300 mW/20msec
- Cataract - 3 grade and more (heavy), low pigmentation, bleedings  
If standard laser 400mW/100msec, start on VALON laser at 300mW/20msec, probably up to 500mW/20ms. It's rare, but possible to have patients that need more power (very heavy cataract or bleeding, weak pigmentation, other opacities).

With heavy cataract always use small patterns to have equal uptake for all spots. 3x3 with spots close to each other or 2x2 with spots close to each other. Also the aiming beam frame option helps to choose the proper pattern.

#### **RETINA HOLES AND TEARS** – exposure time 20 msec

Triple arc, 2x2 and 3x3 or lines with tight spacing – 0 on Valon.

Use Ocular Mainster 165 or Volk HRWF/Volk Superquad, especially for far periphery and 200µm spot (400µm to retina). Also 200µm spot size to the retina can be used.

If middle pigmentation power may be about 350mW, start at 200 mW

Burn will be darker than regular PRP.

#### **MACULA – FOCAL** - exposure time 10 msec

For grid use triple arc with spacing at level 1.5 - 2. Arcs are delivered separately, so for triple arcs you need to press the foot switch three times. Recommended radius 1100µm – 1400µm

For focal treatment use single spot or 2x2 with close spacing (0.2-0.4).

Use Area Centralis/ HR Centralis 100µm spot (100µm to retina)

Power setting should start at max 100mW.

#### **OTHER TREATMENTS**

1. Iridotomy for closed angle Glaucoma - use the same setting as those used for conventional treatment. Single spot mode (possible use repeat mode), spot size: 50 microns, pulse duration 100 -200 msec, average power will be determined by iris thickness and level of pigmentation (color).
2. Neovascular Glaucoma (Rubeosis), an ischemic Central Retinal Vein Occlusion has been successfully treated with pan retinal photocoagulation (pattern modes).
3. Micro Aneurysm - consider 60mW, 50 micron spot size, 100msec pulse duration, *single spot*
4. The approach for the direct treatment of choroidal neovascularization (CNV) is similar to the direct treatment of micro aneurysms. The problem is the proximity of the CNV to the fovea. The difficulty is finding the vessel; here ICG (infrared), angiography is used to find the CNV which originates from the choroidal circulation below Bruch's membrane, and not damaging the fovea. Therefore we recommend 100 microns spot, 10-20 msec pulse duration applications so that heat diffusion is minimized (thus potentially avoiding damage to the fovea) with average power adjusted to a clearly visible vessel coagulation endpoint.
5. Ischemic BRVO – heavier spots must be used
6. Advanced PDR – slightly heavier burns than for regular PDR, significantly more spots (probably well above 4000), 400-500µm spot size to the retina