Clinical efficacy of ultrasonic circular cyclo coagulation in refractory glaucoma. Preliminary results

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PURPOSE
To report the preliminary data collected in San Paolo Hospital (Milano, Italy), of clinical efficacy and safety of Ultrasonic Circular Cyclo Coagulation (UC3) in refractory glaucoma.

METHODS
Between May and November 2012, 11 patients were treated in our centre as a part of the multicenter Eye-MUST2 study. All the patients recruited were suffering with very advanced glaucomas, treated with multiple previous failed surgeries and maximum tolerated medication.

- 7 patients had previous trabeculectomies
- 3 diode coagulation of ciliary body
- 2 valve implant
- 3 penetrating keratoplasty
- 2 trauma
- 2 retinal detachment.

All patients were under maximum-tolerated topical treatment (AVG medication = 3,54); 5 cases were also receiving Diamox. Corneal edema was present in 4 patients.

A UC3 procedure, with partial coagulation of the ciliary ring by 6 fixed zones was performed in peribulbar anaesthesia in all cases. The EyeOP1 device (EyeTechCare, Rillieux la Pape – France) comprising a control module and a therapy probe, was used for performing the UC3 treatments. The therapy probe used a High Intensity Focused Ultrasound (HIFU) technology at 21 MHz. The ultrasound generated (lasting 6 seconds per sector) are able to heat the biological tissue in the focal point and induce necrosis, as showed in previous pre-clinical studies and histological examinations.

Follow-up visits were performed at day 1, 7, 30, 90, 180.

RESULTS
Baseline IOP was 27.1 ± 4.6 mmHg. IOP at day 1, 7, 30, 90 and 180 was respectively 20.8 (±5.7), 19.6 (±6.1), 20.2 (±6.9), 20.5 (±8.0), 19.6 (±2.3) mmHg; this corresponded to a mean reduction of 23%, 31%, 26%, 26%, 22%.

Treatment was well-tolerated in all cases. No major intra- or post-operative complications occurred. Mild conjunctival hyperemia was present at day 1 in all cases; 1 case had a mild corneal abrasion. At day 7, all side effects had resolved. At month 1, corneal edema disappeared in 3 patients, and reduced in 1.

IOP Values (mmHg), all patients (n=11)

<table>
<thead>
<tr>
<th>Time</th>
<th>IOP Preop</th>
<th>IOP Postop 1 day</th>
<th>IOP Postop 1 week</th>
<th>IOP Postop 1 month</th>
<th>IOP Postop 3 months</th>
<th>IOP Postop 6 months</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 day</td>
<td>27.1 ± 4.6</td>
<td>20.8 ± 5.7</td>
<td>18.6 ± 6.1</td>
<td>17.3 ± 2.0</td>
<td>16.7 ± 4.6</td>
<td>19.6 ± 2.3</td>
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<tr>
<td>1 week</td>
<td></td>
<td>20.2 ± 5.4</td>
<td>16.6 ± 4.7</td>
<td>15.5 ± 4.7</td>
<td>12.0 ± 2.5</td>
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<tr>
<td>1 month</td>
<td></td>
<td>20.5 ± 5.8</td>
<td>17.3 ± 4.8</td>
<td>16.7 ± 4.6</td>
<td>15.0 ± 3.5</td>
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<tr>
<td>3 months</td>
<td></td>
<td>20.5 ± 6.0</td>
<td>17.3 ± 4.8</td>
<td>16.7 ± 4.6</td>
<td>15.0 ± 3.5</td>
<td></td>
</tr>
<tr>
<td>6 months</td>
<td></td>
<td>20.5 ± 6.1</td>
<td>17.3 ± 4.8</td>
<td>16.7 ± 4.6</td>
<td>15.0 ± 3.5</td>
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DISCUSSION
At day 7, Diamox was discontinued in all patients except one (for this patient, it was reduced); no change in topical treatment was necessary in any patient.

UC3:
- Effective in reducing IOP in refractory glaucoma
- mean IOP reduction was at 6 months
- IOP-lowering treatments were reduced in 7/11 patients
- A safe procedure, at least in the short term (6 months)

CONCLUSIONS
Based on our preliminary data, UC3 is a secure and effective treatment in refractory glaucoma.

References:

蚝州箱
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