**Purpose**

To determine whether oxygen saturation in retinal vessels of patients with age-related macular degeneration (AMD) is different from that of a healthy population.

**Methods**

Mean oxygen saturation was measured in retinal arterioles and venules in 24 patients with early AMD, 26 patients with untreated exudative AMD, and 14 healthy controls.

The Oxymap T1 retinal oximeter (Oxymap ehf., Reykjavik, Iceland) is composed of a fundus camera, beam splitting optics with light filters, and two digital cameras.

The oximeter captures two images of the same area of the retina at 570nm and 600nm. A color-coded map of oxygen saturation is automatically generated and calculated light absorbance is used to estimate hemoglobin oxygen saturation. Vessel diameter is also measured.

**Results**

Table: Retinal vessel oxygen saturation (%) in arterioles and venules in early AMD and exudative AMD compared with healthy controls.

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>Arterioles</th>
<th>Venules</th>
<th>Arteriovenous difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Healthy controls</td>
<td>72±5</td>
<td>90.7±4.5</td>
<td>50.6±8.5</td>
</tr>
<tr>
<td>Early AMD</td>
<td>76±9</td>
<td>91.9±3.7</td>
<td>(0.34)</td>
</tr>
<tr>
<td>Exudative AMD</td>
<td>80±7</td>
<td>91.5±4.1</td>
<td>(0.48)</td>
</tr>
</tbody>
</table>

All values are mean±standard deviation and (p-value). Asterisks (*) mark statistically significant difference between groups (p<0.05; unpaired t-test).

**Conclusions**

- Retinal oxygen metabolism is affected in AMD.
- Oxygen saturation in retinal venules in early AMD and exudative AMD is higher than in a healthy cohort.
- Arteriovenous difference is smaller in AMD patients than healthy controls.

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