Endothelial cell counts after diode laser peripheral iridoplasty

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Laser peripheral iridoplasty

• First described by Ritch in 1982 as a treatment for acute angle closure
• Gradual increase use during 1990s
• Indications
  – Acute primary angle closure
  – Plateau iris
  – Primary angle closure with residual closure after peripheral iridotomy
Diode laser peripheral iridoplasty

- 810nm versus argon laser (488 nm)
- Better energy transmission and deeper iris burn
- Did not produce photothermal effects on cornea
- Matched Spectralis AS OCT images pre and post laser reveals significant opening that persists at 1 year

Between laser spots

Pre-Treatment

1 Month

6 months

1 Year

Figure courtesy of Clark Stevenson
Aim

• To assess the effect of diode laser iridoplasty on corneal endothelium
Method

• Retrospective observational study
• Primary angle closure or PAC suspects
• Significant residual angle closure despite patent PI
• Comparison of endothelial cell counts in treated versus fellow eyes
Demographics

26

1 : 12

54 (43-70) years

24 (1-70) months
Diode

30-35 spots over 360°

200-350mW

500 microns

< 2.5 seconds
Endothelial count

- NIDEK Confoscan
- Manual count
- Masked to treatment or control
- Assessed on two separate areas of central endothelium
Endothelial cell density of treated and fellow eyes

Endothelial cell density (cells/mm²)

Treated    Fellow

P=0.5773
Difference (Treated – Fellow eyes) in Endothelial Cell Density

Endothelial cell density (cells/mm²)
Difference (Treated – Fellow eyes) in Endothelial Cell Density versus time after Iridoplasty

Endothelial cell density (cells/mm²)

Time since iridoplasty (months)
Discussion

• Most patients did not show significant differences in central endothelial cell density between the treated and control eyes

• No common factors in cases where there were large differences – maybe related to degree of angle closure or endothelial cell loss at time of iridotomy

• Measures were of central cornea so some distance from area of laser application
Conclusion

• Iridoplasty appears safe in terms of corneal endothelial cell numbers
• Recommend care if gutttata/pigment on cornea
• Ongoing data collection
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