# **Early Treatment for Retinopathy of Prematurity (ETROP) Study - 2003**



## **Objective**

To determine whether early ablation of avascular retina in high-risk "prethreshold" retinopathy of prematurity (ROP) improves visual acuity and structural outcomes compared to conventional management.

## Methods

**Design:** Multi-center prospective RCT

**Sample Size:** n=401 eyes

#### **Study Criteria:**

1) Prethreshold ROP:

- Zone I, any stage less than threshold
- Zone II, any stage less than threshold

Threshold = Zone I or II, stage 3 with plus disease (<5 contiguous or 8 cumulative clock hours)

2) High-risk: >15% risk of blindness using RM-ROP2 model

### **Treatment Groups:**

- Control (n=357)
- Early treatment within 48 hours using laser or cryotherapy (n=361)

#### **Outcome Measures:**

- Grating/visual acuity (9month/6year)
- Unfavorable retinal structural outcomes

## Results

**Point 1:** Overall, there was significant benefit for treatment of eyes with high-risk prethreshold ROP at 9 months of age.

- Unfavorable visual outcomes were reduced from 19.5% to 14.5% (P = 0.01)
- Unfavorable structural outcomes were reduced from 15.6% to 9.1% (P < 0.001)

**Point 2:** Further subgroup analysis resulted in a new clinical algorithm for prethreshold disease:

- "Type 1" ROP = treat immediately
  - Zone I, any stage ROP with plus disease
  - Zone I, stage 3 ROP without plus disease
  - Zone II, stage 2 or 3 with plus disease
- "Type 2" ROP = cautious observation (52% of eyes will regress)
  - Zone I, stage I or 2 ROP without plus disease
  - Zone II, stage 3 ROP without plus disease

**Point 3:** At 6 years of age, the structural benefits of early treatment persisted for high-risk prethreshold ROP; however, visual acuity benefits were only present for eyes with type 1 ROP.

TLDR: Early peripheral retinal ablation improves structural and visual outcomes for eyes with type 1 ROP. Eyes with type 2 ROP should be managed with close observation.

Early Treatment For Retinopathy Of Prematurity Cooperative Group. Revised indications for the treatment of retinopathy of prematurity: results of the early treatment for retinopathy of prematurity randomized trial. *Arch Ophthalmol.* 2003;121(12):1684-1694. doi:10.1001/archopht.121.12.1684

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