Introduction

Characterize discrepancies in retinopathy of prematurity (ROP) status between clinical examination results and digital retinal image gradings performed in the "Telemedicine approaches to evaluating acute-phase ROP" – e-ROP Study.

Methods

Subjects: Premature infants with birth weight (BW) <1251g eligible for ROP exams in 13 Level III NICUs in North America from 2011-2013.

Design: Secondary analysis of an observational cohort study

Study procedures in the e-ROP study:

- Routine ROP examination by study-certified ophthalmologists
- Retinal imaging by trained non-physician imagers using a standard imaging protocol
- Image grading using a morphology-based image grading protocol by trained non-physician readers

Consensus review of images by four ROP experts of cases of disagreement

Results: Examination/Imaging pairs

1284 infants were enrolled in the e-ROP Study and 1257 of the enrolled infants underwent routine diagnostic examinations by an e-ROP certified ophthalmologist as well as paired retinal imaging by non-physician staff.

- 5520 paired images were evaluated for presence of RW-ROP
- For 170 image/exam pairs RW-ROP status could not be determined on examination or imaging.
- Among the remaining 5350 image/exam pairs, RW-ROP status was determined.
  - 161 cases where image grading did not detect RW-ROP noted on clinical examination (G-/E+)
  - 854 cases where grading noted RW-ROP when the examination did not (G+/E-)

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