

AB032. The effect of eyemasks on reducing stress associated with retinopathy of prematurity screening

Andrei-Alexandru Szigiato^{1,2}, Matthew Speckert³, Jeanne Zielonka⁴, Kathleen Hollamby⁴, Mary Debono⁵, Filiberto Altomare², Eugene Ng⁶, Rosane Nisenbaum⁷, Michael Sgro⁴

¹Département d'Ophthalmologie, Université de Montréal, Montréal, Québec, Canada; ²Department of Ophthalmology and Vision Sciences, University of Toronto, Toronto, Ontario, Canada; ³Department of Paediatrics, Northern Ontario School of Medicine, Thunder Bay, Ontario, Canada; ⁴Department of Neonatology, St. Michael's Hospital, Toronto, Ontario, Canada; ⁵Faculty of Arts and Sciences, University of Toronto, Toronto, Ontario, Canada; ⁶Department of Neonatology, Sunnybrook Health Sciences Centre, Toronto, Ontario, Canada; ⁷Department of Biostatistics, St Michael's Hospital, Toronto, Ontario, Canada

Background: Retinopathy of prematurity (ROP) is a disorder of retinal development in the low birthweight preterm infant. Eye screening is routinely performed for infants at risk of developing this disorder. While these examinations help prevent blindness, they can be physiologically stressful for infants, with changes in oxygen saturation, blood pressure and heart rate occurring during the exam and increased apneic episodes reported the 24–48 hours period afterward. The cause of these increased apneic episodes is not currently known. Our Background is to evaluate the effect of decreasing light simulation during mydriasis using an eye mask on the frequency of stressful episodes after ROP screening.

Methods: Multi-centre randomized clinical study. This study was approved by hospital ethics boards at all sites. After informed consent was obtained, infants with a birthweight <1,500 g or gestational age of ≤ 32 weeks and scheduled for their first ROP screening were randomized to receive either standard of care or a phototherapy mask during pupil dilation in addition to routine care. Dilated retinal exams were performed by retinal surgeons and fellows. The primary outcome was the frequency of any desaturation, bradycardic event, or apneic event 12 hours following the examination, compared to a baseline rate 12 hours prior to the exam. Heart rate, respiratory rate and oxygen saturation were recorded for up to 48 hours following the examination and compared to baseline.

Results: A total of 51 infants were examined; 28 randomized to the masked group and 23 to the control group. Ten and 13 infants were on ventilator support at the time of examination in each group, respectively. There was a 57.7% decrease in the total number of all stressful events in the masked group compared to controls in the 12-hour post exam period (rate ratio 0.42, 95% CI, 0.2–0.9, $P=0.024$). There was a 61.3% decrease in the number of bradycardic events in the masked group compared to controls (RR 0.39, 95% CI, 0.2–1.0, $P=0.042$). Heart rate was significantly higher in both groups after the exam (Mean HR: 164.67 bpm post *vs.* 157.3 bpm pre; $P=0.04$), with no difference in between groups (Effect by group $P=0.31$). There was no significant difference seen in either group in respiratory rate or oxygen saturation at 2 or 4 hours after the ROP examination compared to baseline. Risk factors that were associated with increased stress included younger gestational age (RR =1.32 95% CI, 1.2–1.5 per week), lower birthweight [RR =1.39 (1.2–1.5) per 100 g], ventilator support around the time of exam [RR =2.67 (1.3–5.6)], diagnosis of intraventricular hemorrhage [RR =3.78 (1.9–7.3)], and hyponatremia [RR =3.42 (1.8–6.6)]. No adverse events occurred while using eye masks.

Conclusions: The infants who wore a phototherapy mask during pupillary dilation had lower rates of stressful episodes following screening for retinopathy of prematurity, particularly lower episodes of bradycardia.

Keywords: Retinopathy of prematurity (ROP); pain; photophobia; neonate

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