

Bölüm 2

PREMATÜRE RETİNOPATİSİ

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Prematüre retinopatisi (ROP), erken doğan bebeklerde retinal damarların anormal proliferasyonuna bağlı olarak gelişen, patogenezi tam olarak bilinmeyen ve körlükle sonuçlanabilen bir hastalıktır. Ülkemizde ve dünyada yenidoğan yoğun bakım koşullarındaki gelişmelere paralel olarak gebelik yaşı ve doğum ağırlığı çok daha küçük prematüre bebeklerin yaşama şanslarının artması görme sorunlarına ve körlüğe neden olabilen ROP' un daha sık bir sorun olarak karşımıza çıkmasına neden olmaktadır. Hastalığın erken tanınması, zamanında ve uygun bir şekilde tedavisi ile kalıcı görme kaybı engellenebilmektedir (Sommer & ark., 2014).

EPİDEMİYOLOJİ VE RİSK FAKTÖRLERİ

Prematüre retinopatisi dünya çapında hatırı sayılır oranda prematüre infantı etkilemektedir. ROP sıklığı ülkelerin ve yenidoğan yoğun bakım ünitelerinin gelişmişlik düzeylerine göre değişkenlik göstermektedir. ROP, gelişmiş ülkelerde 28 hafta ve altı bebeklerde görülmekte iken; gelişmekte olan ülkelerde 34 hafta ve altı bebekleri etkileyebilmektedir (Bashinsky, 2017).

1983-1997 yılları arasında 37 haftanın altında doğan 951 prematüre infantın incelendiği bir çalışmada bebeklerin %21' nde ROP; %5' nde ise ağır ROP geliştiği bildirilmiştir. 32 haftanın üzerinde doğan hiçbir bebekte ROP gelişmediği, 28 haftanın üzerinde doğan hiçbir bebekte ise tedavi ihtiyacı olmadığı bildirilmiştir (Hussain, Clive & Bhandari, 1999).

Amerikada Ekim 2000- Ekim 2002 yılları arasında yapılan çok merkezli bir çalışmada ise ROP insidansının 32 hafta ve üzerinde doğan bebeklerde %8, 27-31. haftalar arasında doğan bebeklerde %19, 27 haftanın altında doğan bebeklerde ise %43 olduğu bildirilmiştir (Good & ark., 2005).

Yeni Zelanda ve Avusturalya'da yapılan bir çalışmada bebeğin gestasyonel yaşı küçüldükçe ağır ROP gelişme insidansının arttığı bildirilmiştir (Darlow & ark., 2005).

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KAYNAKLAR

- Bas, AY. & Koc, E. & Dilmen, U. & ROP Neonatal Study Group. (2015). Incidence and severity of retinopathy of prematurity in Turkey. *Br J Ophthalmol*, 99 (10), 1311-1314. Doi: 10.1136/bjophthalmol-2014-306286.
- Bas, AY. & Demirel, N. & Koc, E. & et al. TR-ROP Study Group. (2018). Incidence, risk factors and severity of retinopathy of prematurity in Turkey (TR-ROP study): a prospective, multicentre study in 69 neonatal intensive care units. *Br J Ophthalmol*, 102 (12), 1711-1716. Doi:10.1136/bjophthalmol-2017-311789.
- Bashinsky HYPERLINK “https://www.ncbi.nlm.nih.gov/pubmed/?term=Bashinsky%20AL%5BAuthor%5D&cauthor=true&cauthor_uid=28420777”, HYPERLINK “https://www.ncbi.nlm.nih.gov/pubmed/?term=Bashinsky%20AL%5BAuthor%5D&cauthor=true&cauthor_uid=28420777” AL. (2017). Retinopathy of Prematurity. *N C Med J.*, 78 (2), 124-128. Doi: 10.18043/nem.78.2.124
- Bharwani, SK. & Green, BF. & Pezzullo, JC. & et al. (2016) Systematic review and meta-analysis of human milk intake and retinopathy of prematurity: a significant update. *J Perinatol*, 36 (11):913-920. Doi: 10.1038/jp.2016.98.
- Brion, LP. & Bell, EF. & Raghuvveer TS. (2003) Vitamin E supplementation for prevention of morbidity and mortality in preterm infants. *Cochrane Database Syst Rev*, (4), CD003665. Doi:10.1002/14651858.CD003665
- Chen, Y. & Li, X-X & Yin, H & et al. (2008). Risk factors of retinopathy of prematurity in six neonatal intensive care units in Beijing, China. *Br. J Ophthalmol*, 92, 326-331. Doi: 10.1136/bjo.2007.131813
- Chen, J. & Smith, LE. (2007). Retinopathy of prematurity. *Angiogenesis*, 10 (2), 133-140. Doi:10.1007/s10456-007-9066-0
- Coats, DK. & Miller, AM & Hussein MA. & et al. (2005) Involution of retinopathy of prematurity after laser treatment: factors associated with development of retinal detachment. *Am J Ophthalmol*, 140(2),1214-222. Doi:10.1016/j.ajo.2004.12.106
- Cryotherapy for Retinopathy of Prematurity Cooperative Group. (1988). Multicenter trial of cryotherapy for retinopathy of prematurity: preliminary results. *Arch Ophthalmol*, 106 (4), 471-479
- Cryotherapy for Retinopathy of Prematurity Cooperative Group. (2002). Multicenter trial of cryotherapy for retinopathy of prematurity: natural history ROP: ocular outcome at 5 (1/2) years in premature infants with birth weights less than 1251 g. *Arch Ophthalmol*, 120 (5),595-599.
- Darlow, BA. & Hutchinson, JL. & Henderson-Smart, DJ. & et al. (2005) Prenatal risk factors for severe retinopathy of prematurity among very preterm infants of the Australian and New Zealand Neonatal Network. *Pediatrics*, 115 (4), 990-996. Doi: 10.1542/peds.2004-1309
- Davitt, BV. & Dobson, V. & Quinn, GE. & et al. (2009). Astigmatism in the Early Treatment for Retinopathy Of Prematurity Study: findings to 3 years of age. *Ophthalmology*, 116 (2), 332-339. Doi: 10.1016/j.ophtha.2008.09.035.
- Early Treatment For Retinopathy Of Prematurity Cooperative Group. (2003) Revised indications for the treatment of retinopathy of prematurity: results of the early treatment for retinopathy of prematurity randomized trial. *Arch Ophthalmol*, 121 (12), 1684-1694. Doi: 10.1001/archophth.121.12.1684
- Fierson WM. Section on Ophthalmology, American Academy of Pediatrics; American Academy of Ophthalmology; American Association for Pediatric Ophthalmology and Strabismus. (2013). Screening examination of premature infants for retinopathy of

- prematurity. *Pediatrics*, 131, (1), 189– 195. Doi: 10.1542/peds.2012-2996
- Filippi, L. & Cavallaro, G. & Fiorini, P. & et al (2010) Study protocol: safety and efficacy of propranolol in newborns with retinopathy of prematurity (PROP-ROP): ISRCTN 18523491. *BMC Pediatr*. 10, 83. Doi: 10.1186/1471-2431-10-83.
- Good, WV. & Early Treatment for Retinopathy of Prematurity Cooperative Group. (2006). The Early Treatment for Retinopathy of Prematurity Study: structural findings at age 2 years. *Br J Ophthalmol*, 90 (11), 1378-1382. Doi:10.1136/bjo.2006.098582
- Good, WV. & Hardy, RJ. & Dobson, V. & et al. (2005). The incidence and course of retinopathy of prematurity: findings from the early treatment for retinopathy of prematurity study. *Pediatrics* ,116 (1), 15-23. Doi: 10.1542/peds.2004-1413.
- Howlett, A. & Ohlsson, A. & Plakkal, N. (2012) Inositol for respiratory distress syndrome in preterm infants. *Cochrane Database Syst Rev*, 14, (3), CD000366. Doi: 10.1002/14651858.CD000366.pub2.
- Hussain, N. & Clive, J. & Bhandari, V. (1999) Current incidence of retinopathy of prematurity, 1989-1997. *Pediatrics*, 104 (3), e26.
- International Committee for the Classification of Retinopathy of Prematurity. (2005). The International Classification of Retinopathy of Prematurity revisited. *Arch Ophthalmol*, 123 (7), 991-999. Doi:10.1001/archophth.123.7.991
- Jorge, EC. & Jorge, EN. & El Dib, RP. (2013). Early light reduction for preventing retinopathy of prematurity in very low birth weight infants. *Cochrane Database Syst Rev*, 6, (8), CD000122. doi: 10.1002/14651858.CD000122
- Keshet, E. (2003) Preventing pathological regression of blood vessels. *J Clin Invest*, 112 (1), 27-29. Doi:10.1172/JCI19093
- Kim, R. & Kim, YC. (2014) Posterior pole sparing laser photocoagulation combined with intravitreal bevacizumab injection in posterior retinopathy of prematurity. *J Ophthalmol*, 2014:257286. Doi: 10.1155/2014/257286
- Koç, E & ark. (2016). *Türkiye Prematüre Retinopatisi Rehberi*. (22/01/19 tarihinde http://www.neonatology.org.tr/wp-content/uploads/2016/12/premature_retinopatisi_rehberi.pdf adresinden ulaşılmıştır.)
- Lueder, GT & et al. (2012). *American Academy of Ophthalmology Pediatric Ophthalmology ve Şaşılık* (Pınar Aydın O'DWYER, Çev. Ed.). İstanbul: Güneş Tıp Kitapevi
- Lovqvist, C. & Niklasson, A. & Engström, E. & et al. (2009) A pharmacokinetic and dosing study of intravenous insulin-like growth factor-1 and IGFbinding protein-3 complex to preterm babies. *Pediatr Res*, 65 (5), 574-579. Doi: 10.1203/PDR.0b013e-31819d9e8c
- Liu, PM. & Fang, PC. & Huang, CB. & et al. (2005). Risk factors of retinopathy of prematurity in premature infants weighing less than 1600 grams. *Am J Perinatol*, 22 (2), 115-120. Doi:10.1055/s-2005-837276
- Miceli, JA. & Surkont, M. & Smith AF. (2009). A systematic analysis of the off-label use of bevacizumab for severe retinopathy of prematurity. *Am J Ophthalmol*, 148(4), 536- 543. DOI: 10.1016/j.ajo.2009.05.031
- Mintz-Hittner, HA. & Kennedy, KA. & Chuang, AZ. & BEAT-ROP Cooperative Group. (2011). Efficacy of intravitreal bevacizumab for stage 3+ retinopathy of prematurity. *N Engl J Med*, 364(7), 603-615. Doi: 10.1056/NEJMoa1007374
- Painter, SL & Wilkinson, AR & Desai, P & et al. (2015). Incidence and treatment of retinopathy of prematurity in England between 1990 and 2011: database study. *Br J Ophthalmol*, 99 (6), 807-811. Doi: 10.1136/bjophthalmol-2014-305561.
- Palmer, EA. & Flynn, JT. & Hardy, RJ. & et al. (1991) Incidence and early course of retinopathy of prematurity. The Cryotherapy for Retinopathy of Prematurity Cooperative Group. *Ophthalmology*, 98 (11), 1628-1640.

- Paysse, EA. & Lindsey, JL. & Coats, DK & et al. (1999) Therapeutic outcomes of cryotherapy versus transpupillary diode laser photocoagulation for threshold retinopathy of prematurity. *JAAPOS*, 3 (4), 234-240.
- Paysse, EA. & Miller, A. & Brady, KM. & et al. (2002) Acquired cataracts after diode laser photocoagulation for threshold retinopathy of prematurity. *Ophthalmology*, 109 (9):1662-1665.
- Qureshi, MJ. & Kumar, M. (2013). D-Penicillamine for preventing retinopathy of prematurity in preterm infants. *Cochrane Database Syst Rev*, 3, (9),CD001073. doi: 10.1002/14651858.CD001073.pub2.
- Repka, MX. & Palmer, EA. & Tung B. (2000) Involution of retinopathy of prematurity. Cryotherapy for Retinopathy of Prematurity Cooperative Group. *Arch Ophthalmol*, 118 (5), 645-649.
- Repka, MX. & Tung, B. & Good, WV. & et al. (2011). Outcome of eyes developing retinal detachment during the Early Treatment for Retinopathy of Prematurity Study (ETROP). *Arch Ophthalmol*, 129 (9), 1175-1179. Doi: 10.1001/archophthalmol.2011.229.
- Reynolds JD. (2011). Bevacizumab for retinopathy of prematurity. *N Engl J Med*. ,364(7), 677-678. Doi: 10.1056/NEJMe1100248
- Royal Collage of Paediatrics and Child Health; Royal Collage of Ophthalmologists; British Association Of Perinatal Medicine and BLISS . (2008). *UK Retinopathy of Prematurity Guideline*. (22/01/19 tarihinde <https://www.iapb.org/wp-content/uploads/RCO-ROP-guidelines-all-2008.pdf> adresinden ulaşılmıştır)
- Sato, T. & Wada, K. & Arahori, H. & et al. (2012). Serum concentrations of bevacizumab (avastin) and vascular endothelial growth factor in infants with retinopathy of prematurity. *Am J Ophthalmol*. 153(2), 327-333. Doi:10.1016/j.ajo.2011.07.005
- Schaffer, DB. & Palmer, EA. & Plotsky, DF. & et al. The Cryotherapy for Retinopathy of Prematurity Cooperative Group. (1993) Prognostic factors in the natural course of retinopathy of prematurity. *Ophthalmology*, 100 (2):230-237.
- Seiberth, V. & Linderkamp, O. (2000). Risk factors in retinopathy of prematurity, a multivariate statistical analysis. *Ophthalmologica*, 214 (2), 131-135. Doi:10.1159/000027482
- Shih, SC. & Ju, M. & Liu, N. & Smith, LE. (2003) Selective stimulation of VEGF-R1 prevents oxygen induced retinal vascular degeneration in retinopathy of prematurity. *J Clin Invest*, 112 (1), 50-57. Doi: 10.1172/JCI17808
- Sommer, A. & Taylor, HR. & Ravilla, TD. , & et al. (2014). Challenges of ophthalmic care in the developing world. *JAMA Ophthalmol*, 132 (5), 640- 644. Doi:10.1001/jamaophthalmol.2014.84
- Stout, AU. & Stout, T. (2003). Retinopathy of Prematurity. *Pediatr Clin N Am*. 2003;50 (1), 77-87.
- Trease, MT. & Droste, PJ. (1998) Long-term postoperative results of a consecutive series of stages 4 and 5 retinopathy of prematurity. *Ophthalmology*, 105 (6):992-997. Doi:10.1016/S0161-6420(98)96024-9
- Trease, MT. & Azad, R. (2013). *Prematüre Retinopatisi*. (Levent Tök, Çev. Ed.). İstanbul: Hiperlink Yayıncılık
- Wu, WC. & Lien, R. & Liao, PJ. (2015). Serum levels of vascular endothelial growth factor and related factors after intravitreal bevacizumab injection for retinopathy of prematurity. *JAMA Ophthalmol*, 133(4), 391-397. Doi: 10.1001/jamaophthalmol.2014.5373
- Zhou, J. & Shukla, VV. & John, D. & et al. (2015). Human Milk Feeding as a Protective Factor for Retinopathy of Prematurity: A Meta-analysis. *Pediatrics*, 136 (6), 1576-86. Doi: 10.1542/peds.2015-2372.