Comment on: Central corneal thickness and intraocular pressure in premature and full-term newborns

Dear Sir,

We have read the article entitled “assessment of the central corneal thickness (CCT) and intraocular pressure (IOP) in premature and full-term newborns” with great interest. Thanks to the authors for the contribution to the literature with a well-designed study. The authors concluded that premature infants—almost significantly (P = 0.07) have slightly thicker corneas than full-term infants, however, have no high IOP measurements.

Corneal thickness has gained clinical interest since Ocular Hypertension Treatment Study that identified CCT as an important risk factor in glaucoma. It is known that large corneal thickness is present at birth in premature newborns, which leads to loss of corneal transparency and it appears to be related to increased corneal hydration. It is shown that the reduction of hydration after birth is related to a fast development of endothelium and Na/K ATPase-dependent pump, and this leads decrease in corneal thickness.

In the literature, gestational age in the studies evaluating the CCT and IOP in premature and full-term newborns ranges between 29.8 and 32 weeks. However in the Muslubas’s study, it was 36.3 ± 0.9 weeks, almost 5 weeks later than similar studies. It is known that corneal hydration decreases day by day until birth. The authors reported no significant differences in CCT and IOP between premature newborns and full-term infants. Kirwan et al. reported that babies born at near 31 weeks have very thick corneas and shows statistically significant decrease to term. Ng et al. measured the IOP at mean 26.1 and 46.4 weeks of postconceptional age and reported IOP is significantly and negatively associated with postconceptional age. Ricci also reported that IOP in premature infants shows a significant reduction in the first month of life. Therefore, their finding could be estimated because of the high gestational age. They stated this for CCT in discussion, but it is also applicable for IOP measurement.

Broman et al. assessed the influence of axial length, corneal astigmatism, hysteresis and refractive error on IOP measurement with different tonometers. The authors concluded that some of those characteristics such as hysteresis, corneal astigmatism and corneal curvature influenced the tonometers significantly, and all should be taken consideration among the variables that affect IOP assessment and susceptibility to glaucoma damage. This study covers adult’s eye, and it can be speculated that effect of these parameters on IOP probably is much more in an immature eye such as premature newborn. Hereby does the
authors have measured the different variables such as corneal astigmatism, refractive error and axial length took in account in IOP assessment?

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**References**

1. Muslubas IB, Oral AY, Cabi C, Caliskan S. Assessment of the central corneal thickness and intraocular pressure in premature and full-term newborns. Indian J Ophthalmol 2014;62:561-4.

2. Waring GO 3rd, Bourne WM, Edelhauser HF, Kenyon KR. The corneal endothelium. Normal and pathologic structure and function. Ophthalmology 1982;89:531-90.

3. Kirwan C, O'Keefe M, Fitzsimon S. Central corneal thickness and corneal diameter in premature infants. Acta Ophthalmol Scand 2005;83:751-3.

4. Ng PC, Tam BS, Lee CH, Wong SP, Lam HS, Kwok AK, et al. A longitudinal study to establish the normative value and to evaluate perinatal factors affecting intraocular pressure in preterm infants. Invest Ophthalmol Vis Sci 2008;49:87-92.

5. Ricci B. Intraocular pressure in premature babies in the first month of life. J AAPOS 1999;3:125-7.

6. Broman AT, Congdon NG, Bandeen-Roche K, Quigley HA. Influence of corneal structure, corneal responsiveness, and other ocular parameters on tonometric measurement of intraocular pressure. J Glaucoma 2007;16:581-8.

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