UK Paediatric Glaucoma Society (UKPGS) Annual Meeting
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Approved CPD 6 points (Royal College of Ophthalmologists)

Abstracts

1 - CYP1B1 variants differ in neonatal-onset versus infantile-onset primary congenital glaucoma in a North Indian population

Prof Sushmita Kaushik
Guptasarma ML, Prashar D, Dhingra D, Kumar A, Sharma S, Pandav SS
Advanced Eye Centre, Postgraduate Institute of Medical Education and Research, Chandigarh, India
Correspondence: sushmita_kaushik@yahoo.com

Purpose: To compare *CYP1B1* and *MYOC* variants in a cohort of neonatal-onset (NO) and infantile-onset (IO) primary congenital glaucoma (PCG).
Methods: This prospective observational cohort study included forty-three infants with PCG (14 NO and 29 IO) presenting between January 2017 and January 2019 with a minimum one-year follow-up. *CYP1B1* and *MYOC* genes were screened using Sanger sequencing. In-silico validation of genetic variants were done by Polyphen-2 and PROVEAN platforms. Comparison with allelic frequency was made using the Genome Aggregation Database (gnomAd). Disease presentation and outcome were correlated to the specific genetic variants found in both groups. Any consistent genotype-phenotype correlation was noted.
Results: Babies with *CYP1B1* mutations had more severe disease at presentation and worse outcomes. 6 of 14 (42.8%) NO glaucoma and 5 of 29 (17.2%) IO harboured *CYP1B1* mutations. 5 of 6 babies in the NO group and 3 of 5 in the IO group harboured the variant c.4997G>A [p.R390H]. They required more surgeries for IOP control (2.5 vs. 1.3) and had a poor outcome. In-silico analysis by Polyphen-2 and PROVEAN c.4997G>A [p.R390H] scored very likely pathological. Two patients in the IO group harbouring c.5122C>G, [p.L432V] variant had a good outcome. The variant c.304G>A, [p.R76K] in *MYOC* was seen in all normal controls.
Conclusions: Patients with *CYP1B1* pathogenic variants had a poorer outcome than those without. A greater number of neonatal-onset PCG babies harbour *CYP1B1* mutations compared to infantile-onset PCG. This may be one of the reasons for NO PCG having a poorer prognosis compared to IO PCG.