Visual syndrome of prematurity

Síndrome visual de la prematuridad

I. González Viejo, V. Pueyo, C. Ferrer, I. García-Ormaechea, E. Prieto

When pediatric ophthalmologists discuss premature patients with colleagues, the focus is generally on Retinopathy of Prematurity (ROP). This pathology has one of the most extended protocols in our sub-specialty. The classification, screening, diagnosis and treatment criteria are perfectly well defined. The introduction of diode laser for treating this disorder and the ETROP study (Early Treatment of Retinopathy of Prematurity), which established clear treatment guidelines, have contributed to reducing statistics in developed countries to the extent that at this date only between 5 and 10% of cases exhibit unfavorable evolution. These achievements continue to be improved with the introduction of new treatments such as anti-vascular endothelial growth factor intravitreal injections. Probably for all these reasons, at present ROP does not occupy one of the first places in childhood visual deficiency causes.

However, premature patients are not only at risk of ROP, which must be assessed in the neonatal period, as this disorder constitutes a “syndrome” from the ophthalmological viewpoint. In addition, these patients are at high risk of suffering visual impairment throughout their development due to ocular as well as neuro-ophthalmological pathologies. Accordingly, premature patients require long-term follow-up. The appearance of strabismus, nystagmus, ametropia, anisometropia, amblyopia and retina detachment is significantly more frequent in prematures than in the normal population, and not only among those who exhibited ROP. Babies weighing under 1500g are considered to be a special risk group, as well as those exhibiting low weight at birth (weight under P 10 for gestational age), who constitute an important group within the group of prematures.

Special mention must be made of CVI (Cerebral Visual Impairment) as it constitutes at present the main cause of visual deficiency in childhood in developed countries, with a prevalence of 45%. When comparing CVI with ROP, the latter has gone down from the 3rd to the 7th position with a prevalence of 4%. The main risk factor for CVI is prematurity. In addition, CVI patients exhibit multiple deficiencies with associated motor and intellectual pathologies, which increase examination difficulties. Adequate examination strategies for these patients must be developed and applied due to the multiple examination difficulties caused by their age and impairment.

The main risk factor in CVI is prematurity, in addition to the fact that a CVI patient usually exhibits multiple deficiencies with associated motor and intellectual pathology which increases exploration difficulties. Adequate exploration strategies must be developed and applied for these patients with dual access difficulties due to age and impairment. CVI includes a range of conditions, e.g. optic atrophy, campimetric defects, nystagmus, optic ataxia, simultanagnosia, visual agnosia and prosopagnosia, etc. Adequate diagnosis of these patients will assist in establishing optimum strategies for rehabilitation. In 2013, the ETROP group published a visual


* Corresponding author.
E-mail address: igonzalezv@salud.aragon.es (I. González Viejo).
2173-5794/© 2014 Sociedad Española de Oftalmología. Published by Elsevier España, S.L.U. All rights reserved.
function study at age 6 in premature treated for ROP with good anatomic results but poor functional results. The said group found that CVI is an important cause of visual deficiency and that up to the 78% of patients do not meet the functional independence scale. Adequate rehabilitation can help diminish dependency or the impact thereof in their daily lives.

CVI includes CVD (Cerebral Visual Dysfunction), a pathology with efferent pathway alteration and good development of the afferent pathway. These patients exhibit significant difficulties at school due to visual integration problems despite adequate visual acuity and normal routine ophthalmological exploration because the said exploration focuses on finding impairments in the afferent pathway. To reach the diagnosis of CVD, specific visual function tests must be performed which are not generally familiar to pediatric ophthalmologists but even so are within our range of competencies, as only we can integrate the interpretation of the said tests within a full ophthalmological exploration. Updating knowledge and researching the efferent pathway will constitute a challenge for Pediatric Ophthalmology for a comprehensive treatment of prematurity. The diagnosis of these alterations will improve school performance and the academic results of our patients.

In summary, prematurity is an “ophthalmological syndrome” which requires control of patients during the neonatal period to carry out screening for ROP but should also include long-term follow-up. Pediatric ophthalmologists cannot be satisfied with resolving prematurity retinopathy and achieving full vascularization. We must continue with the patient, diagnosing and treating multiple ophthalmological pathologies which they could develop, and this requires ongoing training and improvement of our daily practice. Finally, as with many other syndromes, a multidisciplinary group approach including other health professionals such as neuro-pediatricians, rehabilitation experts, therapists, opticians, educators and others is very important.

REFERENCES