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ORIGINAL ARTICLE

Clinical features of strabismus in psychomotor retardation[☆]



Belina Arias-Cabello^{*}, María Estela Arroyo-Yllanes, José Fernando Pérez-Pérez,
Anselmo Fonte-Vázquez

Servicio de Oftalmología, Clínica de Estrabismo, Hospital General de México Dr. Eduardo Liceaga, Secretaría de Salud, México, D.F., Mexico

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KEYWORDS

Strabismus;
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Risk factors

Abstract

Background: In psychomotor retardation there is an abnormal development of mental, sensory and motor skills associated with ocular manifestations. There are biological and psychosocial risk factors that predispose an individual to neurological damage. From 50% to 80% of patients with strabismus retardation have special features that differentiate it from the rest of strabismus in healthy patients.

Objective: To determine the most common type of strabismus in patients with psychomotor retardation and their clinical features.

Material and methods: Patients with psychomotor retardation and strabismus were included. An ophthalmological examination was performed, as well as an evaluation of the characteristics of strabismus, including perinatal and post-natal history.

Results: Esotropia was the most frequent squint with 65.3%, followed by exotropia with 32.7%. The variability in the squint magnitude was 60% in both types, and 6 patients had dissociated vertical deviation. Most of the patients started to present strabismus since they were born. The most frequent perinatal risk factors were threatened miscarriage, pre-eclampsia, foetal distress, and hypoxia.

Conclusions: Esotropia is the most common type of strabismus in psychomotor retardation. The variability of squint magnitude is a characteristic in these patients. The moderate variability is the most frequent in both esotropia and exotropia. The most common refractive error is hyperopic astigmatism in esotropia and the myopic kind in exotropia.

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^{*} Corresponding author at: Eje 2A Sur (Dr. Balmis) No. 148, Cuauhtémoc, Doctores, C.P. 06726 México, D.F., Mexico.
Tel.: +52 (55) 2789 2000.

E-mail address: beloca83@yahoo.com.mx (B. Arias-Cabello).

PALABRAS CLAVE

Estrabismo;
Trastornos
psicomotores;
Factores de riesgo

Características clínicas del estrabismo en retraso psicomotor**Resumen**

Antecedentes: En el retraso psicomotor hay desarrollo anormal de capacidades mentales, sensoriales o motoras, que se asocian con manifestaciones oculares. Existen factores de riesgo biológicos y psicosociales que predisponen a un individuo a daño neurológico. Del 50 al 80% de los pacientes con retraso psicomotor tienen estrabismo con características especiales, que lo diferencian del resto de los estrabismos en pacientes sanos.

Objetivo: Conocer el tipo más común de estrabismo en pacientes con retraso psicomotor, así como, sus características clínicas.

Material y métodos: Se incluyó a pacientes con retraso psicomotor y estrabismo. Se realizó exploración oftalmológica completa, valoración de las características del estrabismo y se indagó acerca de antecedentes perinatales y posnatales.

Resultados: La desviación más frecuente fue la endotropía con un 65.3%, seguida de la exotropía con 32.7%. La variabilidad de la magnitud de la desviación fue aproximadamente del 60% para ambos tipos de desviación; 6 pacientes presentaron desviación vertical disociada. La mayoría de los pacientes comenzaron a desviar desde el nacimiento. Como antecedente de importancia, los factores de riesgo perinatales más frecuentes fueron amenaza de aborto, preeclampsia, sufrimiento fetal y, asfisia neonatal.

Conclusiones: La endotropía es el tipo de estrabismo más frecuente en retraso psicomotor. La variabilidad de la magnitud de desviación es una característica del estrabismo en pacientes con retraso psicomotor. La variabilidad mediana es la más frecuente tanto en endotropías como en exotropías. El defecto refractivo más frecuente es el astigmatismo hipermetrópico compuesto en endotropías y miópico en exotropías.

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Background

The development of the brain and that of the eye are closely related, at both a morphological and molecular level. Therefore some eye disorders are accompanied by malformations of the central nervous system.¹

Psychomotor development is a dynamic and complex process which involves interrelated biological, psychological and social aspects, and is the basis of children's motor, intellectual, and subsequent relational skills.² Psychomotor retardation is the abnormal development of an individual's mental, sensory or motor skills, and an alteration in the development of their skills, with an imbalance in the integrity of the central nervous and peripheral system, which means that the achievements of a paediatric patient appear in slow sequence or qualitatively altered for their age, especially in the first years of life, considered the plastic age in general neurological function.³

There are several elements which can alter a child's development in the first 3 years of life.^{3,4} According to Sweeney and Swanson,⁵ the risk factors associated with delayed psychomotor development can be biological (prenatal, natal and postnatal), psychosocial or environmental^{4,5} (Table 1).

The World Health Organisation considers that the frequency of high-risk pregnancies affects 3–5% of neonates.⁶ The high neurological risk in children is a public health problem in Mexico, and currently it is estimated that 7–8% of all

live newborns are born prematurely (under 37 weeks), and that 1–2% are born weighing under 1500 g¹ and these children are more likely to develop motor problems because their nervous system is immature which makes it more susceptible to injuries to the motor system which is so fragile and vulnerable. It has been observed that the larger the injured area, the greater the motor impairment, and therefore, the damage to other neurological functions.⁷

Cerebral palsy, defined as impaired control of movements and posture, is of early onset, secondary to central nervous system disease or dysfunction not resulting from progressive or degenerative brain disease. From 30% to 50% of patients with cerebral palsy have psychomotor retardation.¹ They can present sensory deficits (atrophy of the optic nerve, deafness, lack of development of the visual cortex). From 50% to 90% of patients with cerebral palsy present neurological impairment, amblyopia, refractive errors, congenital cataracts, impaired ocular mobility; the latter include strabismus, oculomotor palsy, nystagmus, gaze palsy, and other supranuclear disorders.⁷

Neurological disorders and psychomotor retardment are associated with strabismus in 50–80% of cases. The characteristics of this type of strabismus are generally similar to those of other types of strabismus in normal children, but a small percentage have differences which are sufficient to distinguish them. Children with neurological disorders, with horizontal type strabismus, have a high prevalence of constant exotropia and hyperfunction of the superior oblique muscles compared to healthy strabismic children.⁸ The

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