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Mini Review

Neonatal Bilateral Herpetic Keratitis Treated with Ribavirin Eye Drops at the Yaounde Gyneco-Obstetric And Pediatric Hospital: About A Case

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Abstract

Introduction: Herpetic keratitis is inflammation of the cornea caused by herpes simplex viruses 1 and 2 (HSV-1 and HSV-2). HSV-2 keratitis is almost only encountered in neonatal infections causing amblyopia or even blindness. The mode of per-partum contamination during passage through the genital canal is very often recurrent. We report the case of a 33-day-old infant who presented with bilateral neonatal herpetic keratitis and which poses a therapeutical and prognostical problem.

Medical Observation: We reported the case of a 33-day-old infant, born to a primiparous mother by septic delivery at home, who presented with neonatal bilateral herpetic keratitis at two weeks of life without systemic involvement treated with ribavirin eye drops. The evolution was marked by the improvement of symptomatology with the disappearance of corneal opacities.

Conclusion: If not treated early, neonatal herpetic keratitis can lead to serious eye damage and even systemic lesions. New molecules such as ribavirin eye drops are proving their worth in the management of herpetic keratitis.

Keywords: Keratitis; Herpes; Newborn

Introduction

Herpetic keratitis is an inflammation of the cornea by the herpes simplex virus (HSV) which are of two types HSV-1 and HSV-2. These viruses are fragile, transmitted through intimate human-to-human, oral or genital contact; humans are the only reservoir. In general, HSV-1 is transmitted by mucocutaneous contact and is the cause of oral-facial herpes with mainly oral, but sometimes ocular or cerebral infections. HSV-2 is responsible for genital herpes and is transmitted by sexual contact. It is responsible for cases of neonatal herpes [1]. Every year in France, about 60,000 herpes episodes are diagnosed. In fact, it is the leading cause of blindness of infectious origin in industrialised countries [1]. Herpes simplex virus infection, although rare in children, can be devastating in newborns as it can cause significant ocular morbidity [1,2]. It is predominantly unilateral and bilateral in 3% of cases [3].

We report the case of a 33-day-old infant who presented with bilateral neonatal herpetic keratitis at two weeks of life treated with ribavirin eye drops at the ophthalmology unit of the Yaoundé Gynaecological-Obstetric and Paediatric Hospital (HGOPY). This case poses a therapeutical and prognostical problem.

Medical observation

This is a 33-day-old infant, female, resident in Yaounde. He was referred by a nurse specialised in ophthalmology for better

management of a bilateral corneal opacity. The symptomatology dates back to 14 days (2 weeks) of life before the consultation at the HGOPY with the appearance of bilateral mucopurulent secretions and permanent bilateral palpebral occlusion to light. This led to an ophthalmological consultation in a local health centre where the child was put on ciprofloxacin eye drops and ointment for both eyes. The treatment was administered for 15 days but the evolution was marked by an improvement in secretions but the appearance of corneal opacities, hence his referral to our department. He had a primiparous mother, a pregnancy that was well monitored in a local health centre, but a septic delivery at home by vaginal delivery. The mother and the newborn had been taken to hospital for appropriate care.

On clinical examination, the child was in good general condition. Ophthalmologically, after exposure of the globe with a blepharostat and under topical anaesthetic, both eyes showed mucopurulent secretions on the cilia requiring eyewash, and diffuse bulbar conjunctival hyperhaemia. Examination of the cornea under the diffuse light of a portable slit lamp showed large corneal opacities that invaded the visual axis. After instillation of fluorescein, geographic corneal ulcerations with fine dendrites in the periphery were noted (Figure 1). The anterior chamber was difficult to assess. The diagnosis was a geographic form of bilateral neonatal herpetic keratitis.

The management consisted of washing the ocular secretions with saline, a topical antiviral (ribavirin eye drops) with regular instillations associated with topical antibiotic therapy (ciprofloxacin eye drops), a cycloplegic three times a day (tropicamide eye drops). Local inflammatory signs and ulcer size had to be monitored daily. A paediatric consultation was done and revealed no systemic involvement. Oral treatment with aciclovir 400 mg was prescribed to the mother. The father was also counselled and put on oral antiviral therapy. The evolution was marked on the 10th day by a considerable decrease in the size of the ulcers and the absence of fluorescein intake. We added a topical non-steroidal anti-inflammatory drug (indomethacin eye drops) and a corneal healing ophthalmic gel (dexpanthenol). After 20 days of well-conducted treatment, the evolution was marked by clear corneas with disappearance of corneal opacities (Figure 2). Weekly monitoring was instituted.

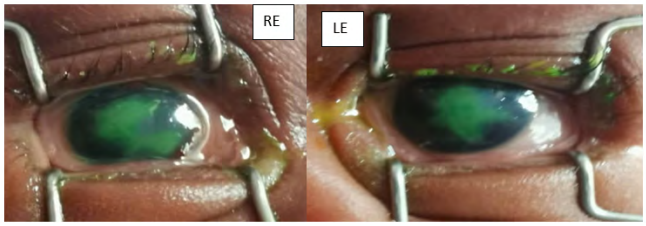

Figure 1: Geographic ulcer with corneal opacity right and left eye.

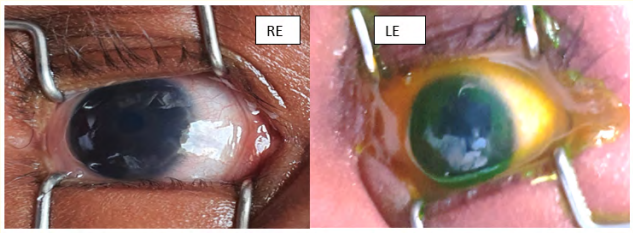

Figure 2: Corneal clearing in both eyes after 20 days of treatment.

Discussion

Herpes simplex virus (HSV) infection can be very severe in neonates. The disease most commonly presents as one of three clinical manifestations: disseminated visceral infection (with and without central nervous system involvement), isolated meningoencephalitis, and infection limited to the skin, eyes and/or mucous membranes [4]. Neonatal herpes affects one newborn per 7,500 births and is most common in young primiparous women. It is herpes simplex virus type 2 (genital in 70% of cases) with fetomaternal transmission [5]. In England, the incidence of neonatal herpes was approximately 3/100,000 births [6]. In our case, an infant was born to a 22-year-old primiparous woman.

Several routes of infection have been described: in utero by transplacental haematogenous dissemination in case of maternal primary infection with high viremia; ascending in case of premature rupture of membranes; and per-partum during passage through the genital tract [7]. However, more than two-thirds of neonatal herpes infections occur in newborns of mothers who do not report an episode of herpes infection. Most genital herpes infections during pregnancy are asymptomatic [7]. Per-partum

infection during passage through the genital tract was probably the route of infection in our case, with symptomatology beginning at 14 days of life.

All types of keratitis (dendritic or geographic epithelial, stromal, endothelial, neurotrophic) are possible in children, but stromal keratitis is the most frequent. Indeed, they represent about 60% of cases (compared to 20% in adults). Bilateral forms are also more frequent: exceptional in adults, they represent 20-25% of cases in children [8]. The ophthalmological manifestations in the anterior segment (herpetic anterior segmentitis) are: superficial punctate keratitis or micro dendrites rather limbal; which may be complicated by ulceration, corneal opacification, or even a cataract. And in the posterior segment: chorioretinitis, macular or papillary aplasia [8,9]. Our patient presented with bilateral anterior herpetic segmentitis. Systemic manifestations include spontaneous abortion, premature delivery, in utero growth retardation, in utero skin lesions and microcephaly [10]. Our patient had no systemic involvement. The paediatric background influences the management of ocular herpes. Before the age of 6 years, amblyopia may be a problem. This may be secondary to corneal opacity, the visual impact of which is not always expressed by the child, but also to irregular astigmatism (sometimes satellite to a minimal opacity) which can only be detected by topography [8].

With regard to antivirals, the choice is between aciclovir and valaciclovir. Aciclovir is available as tablets, syrup at 400 and 800 mg/10 mL and ophthalmic ointment (for epithelial keratitis only). According to the Marketing Authorisation, aciclovir can be prescribed from the age of 2 years. As an initial treatment, for a child weighing more than 30 kg, it is usual to use "adult" doses, i.e. 800 mg 5 times/day. For lower weights, the dosage should be adapted empirically. Valaciclovir is not indicated before the age of 12 years, but if this drug, which has much better bioavailability than aciclovir, is deemed necessary, it can be prescribed with the agreement of a paediatrician [8]. In all cases, it is never useful to combine systemic and topical treatments: the toxicities of the treatments add up, but unfortunately not their effectiveness. For stromal forms, topical corticosteroid therapy adapted to the severity of the disease is started after 24-48 hours of anti-viral therapy and progressively reduced. Weaning should always take place under antiviral cover [8].

In our case, the patient received ribavirin eye drops as an antiviral available in our pharmacy for the management of herpetic keratitis. Ribavirin is commonly used for the treatment of hepatitis C but ribavirin 8mg/8ml eye drops are used to treat herpes simplex virus keratitis [11] . This is a molecule that allowed us to observe an improvement in the symptomatology of this infant. Many studies should be conducted on this topical antiviral to investigate its particularities.

Conclusion

Herpetic keratitis is a rare but serious condition in newborns as it can lead to complications such as blindness and amblyopia. Management must be rapid and can be done with the help of new molecules such as ribavirin eye drops in view of its effectiveness in our patient drops.

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Conflict of Interest

This work does not present any conflict of interest.

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