· Brief Report ·

Efficacy of supratarsal injection of triamcinolone acetonide and dexamethasone sodium phosphate in treating paediatric vernal keratoconjunctivitis in suburban Malaysia

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曲安奈德联合地塞米松上睑板内注射治疗小儿春季角结膜炎

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摘要

马来西亚理科大学5a来使用曲安奈德混悬型注射液与地塞米松磷酸钠治疗小儿春季角结膜炎(VKC)的疗效研究。10例联合注射治疗患者注射1mo后症状有所改善。其中4例患者主要并发症为眼压增高。6mo内有4例患者复发。研究发现上睑板联合注射两种皮质类固醇治疗春季角膜炎的临床效果与文献报道使用单一皮质类固醇剂非常相似。然而,该治疗方法眼压升高的风险较大。

关键词:春季角膜炎;上睑板皮质类固醇注射;过敏性结膜炎

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Abstract

• This study aims to describe the treatment efficacy of supratarsal injection of triamcinolone acetonide and dexamethasone sodium phosphate for paediatric vernal keratoconjuctivitis (VKC) over a 5-year-period in Hospital Universiti Sains Malaysia. Totally 10 patients were treated with this combination injection had clinical improvement by 1mo post injection. The main complication was increased intraocular pressure (4 patients). Four patients had recurrences within 6mo. We concluded that the clinical response to supratarsal combination corticosteroids in VKC is fairly similar to that reported in the literature using a single corticosteroid agent. However, the risk of increased intraocular pressure is higher.

• KEYWORDS: vernal keratoconjuctivitis; supratarsal corticosteroid injection; allergic conjunctivitis

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INTRODUCTION

Vernal keratoconjunctivitis (VKC) is characterized by recurrent, severe chronic inflammation of the ocular surface[1]. It tends to involve children[2], with exacerbations during spring, but in tropical countries, symptoms may persist throughout the year, causing significant disability[3-4]. A wide range of therapeutic modalities are available; however, conventional treatment such as topical steroids may fail in refractory cases[2]. The literature on corticosteroid injection as a treatment option is limited[2,5-10]. We thus aim to describe the treatment efficacy of supratarsal injection of triamcinolone acetonide and dexamethasone sodium phosphate in pediatric VKC.

METHODS

We conducted a retrospective review of medical records of pediatric VKC patients treated with supratarsal corticosteroid injection from January 2010 until December 2014 at Hospital Universiti Sains Malaysia, a referral center for pediatric ophthalmology services in the East Coast of Peninsular Malaysia.

The procedure was performed under general anesthesia with the patient lying supine and the upper lid everted. A combination of dexamethasone sodium phosphate (2 mg in 0.5 mL) and triamcinolone acetonide (20 mg in 0.5mL) was injected 1 mm superior to the upper edge of the tarsus, using

Table 1 Presenting clinical features (n=10 patients)

Clinical features	n(%)
Itchiness	10(100)
Redness	9(90)
Tearing	9(90)
Photophobia	9(90)
Mucus discharge	2(20)
Blurring of vision	4(40)
Conjunctival chemosis	8(80)
Lid edema	4(40)
Giant papillae	10(100)
Thickening of limbus/ Trantas dots	3(30)
Superficial punctate keratitis	4(40)
Shield ulcer	8(80)

a 27-gauge needle. Day one post injection, the patients were maintained on topical olopatadine hydrochloride 0.1% two times per day for 6mo duration.

RESULTS AND DISCUSSION

A total of 18 eyes of 10 patients were included in the study, after exclusion of those with ocular co-morbidities besides VKC. All patients were of Malay ethnicity. The mean age was 10 years old. The disease was bilateral in 80% of patients. The most common clinical presentation of VKC was itchiness, which was noted in all patients (Table 1).

All patients responded well to the supratarsal injection, with significant improvement of ocular symptoms starting from 2wk post injection. At 1mo follow up, all patients also had significant improvement in vision, with a gain of at least 2 lines of Snellen visual acuity. The main side effect of injection was high intraocular pressure, observed in 4 patients (22.2%) (Table 2). One patient was treated with G. timolol 0.5% daily for a period of one month. The remainder had spontaneous normalisation of intraocular pressure within a month of treatment. Recurrence of symptoms was seen in 4 (22.2%) of patients, with the earliest recurrence seen at 2mo post supratasal injection, requiring a second course of supratarsal corticosteroid injection. No other complications were observed.

The male-female ratio in our study was 9:1, which is in keeping with previously published studies[2-3,13-14]. However, the mean age of our patients was 10 years old, which is younger than in the literature[2,5-13]. Interestingly, 20% of our cases were unilateral, while in other tropical countries, involvement was bilateral in all cases[13]. The symptoms and signs of VKC in our study were as reported in other studies[2,5].

Studies have shown that supratarsal injection of dexamethasone sodium succinate, triamcinolone acetonide and hydrocortisone sodium succinate give promising results in the temporary suppression of inflammation and are well-tolerated, even in young children[2-3,5-14]. The treatment is divided into two phases; short-term intensive therapy with dexamethasone to treat exacerbation of inflammation, and longer-acting hydrocortisone to maintain the remission achieved by intensive therapy. Both short-acting dexamethasone sodium succinate and intermediate-acting triamcinolone acetonide are equally effective, as reported by Saini *et al*[15].

Table 2 Comparison of our study with other published data

Parameters	Our study	Burney *et al*[14]	Aghadoost[2]	Zaouali *et al*[3]	Singh *et al*[13]
Country	Malaysia	Pakistan	Iran	Tunisia	India
Year	2016	2010	2004	2012	2011
Number	18 eyes of 10 patients	18 patients	35 eyes of 16 patients	40 eyes of 20 patients	90 eyes of 45 patients
Mean age (range) in years	10(4-16)	11(5-25)	13(8-23)	9(6-13)	13(5-23)
Males, n(%)	9(90.0)	13(72.2)	11(68.7)	15(75.0)	40(88.9)
Laterality					
Bilateral, n(%)	8(80.0)	100	NA	NA	100
Initial visual acuity					
<6/12	1(10.0)	NA	NA	32(80.0)	NA
6/15 to 6/60	9(90.0)			5(7.5)	
Less than 6/60	0			3(12.5)	
Visual acuity at 1mo post treatment	All better than 6/12	NA	NA	NA	NA
Complications, n (%)					
Skin depigmentation	0	0	0	0	0
Blepharoptosis	0	0	0	0	0
Motility disturbances	0	0	0	0	0
Conjunctival scaring	0	0	0	0	0
High intraocular pressure	4(22.2)	0	0	1(2.5)	0
Steroid-induced glaucoma	0	0	0	0	0
Steroid-induced cataract	0	0	0	0	0
Early recurrence	4(22.2)	2(11.1)	2(12.5)	14(35.0)	90(100%)
Second supratarsal injection	4(22.2)	2(11.1)	2(12.5)	4(10.0)	90(100%)
Follow up duration (mo)	6	NA	54	9	6

NA: Not available.

We observed that supratarsal injection of dexamethasone and triamcinolone acetonide provides rapid symptom relief in all patients, with significant improvement of cobblestones papillae and complete resolution of shield ulcer within one month post steroid injection. These observations are consistent with published studies[2-3,13-14]. The visual acuity in all our patients improved to less than 6/12 at 1mo post treatment. Other studies did not document the visual acuity post treatment. The recurrence rate of VKC in our study (22.2%) was lower than the 35% cited by Zaouali *et al*[3] in 2012. Table 2 summarizes the clinical profiles, post treatment effect, complications and recurrences of VKC from published literature[2-3,13-14].

A high proportion (22.2%) of our patients developed raised intraocular pressure post supratarsal steroid injection within a mean of 6mo. This is higher than in the study by Zaouali *et al*[3] in which 2.5% of their study population developed the same complication over a mean follow up duration of 9mo. No similar complications were noted in other studies[2,13-14]. This dramatic difference in the rates of raised intraocular pressure may be due to the dual corticosteroid combination used in our study, instead of the single agents used in other studies[2-3,13-14].

The limitations of our study include its small sample size, retrospective nature, and lack of a control group. Whether supratarsal injections with a single corticosteroid agent may have a lower rate of raised intra-ocular pressure is uncertain. Further studies may shed further information on this point.

The clinical response to dual supratarsal corticosteroid injection in pediatric VKC patients from our center is fairly similar to that of single agent supratarsal corticosteroid injections in published studies from India, Pakistan, Iran and Tunisia. However, the incidence of raised intraocular pressure post treatment is significantly higher than in other studies. As our results were obtained from a single center, we recommend that larger-scale, multicenter studies may be helpful to analyze the efficacy of supratarsal injection with single versus dual corticosteroid agents, as well as to compare the rates of intraocular pressure elevation between these two groups.

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