



The efficacy and safety of an extemporaneous preparation of 2% ganciclovir eye drops in CMV anterior uveitis

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Background: Many studies have confirmed the benefits of topical ganciclovir in CMV anterior uveitis in varying concentrations

Design: Retrospective cohort design

Methods: This study enrolled 11 eyes (11 patients) with CMV anterior uveitis. All cases were proved by positive PCR for CMV DNA from aqueous tapping and received topical 2% ganciclovir, applied every two hours daily as induction therapy then tapered off and stopped based on clinical response. Outcome measures were best-corrected visual acuity, anterior chamber cell, coin-shaped and other keratic precipitates, intraocular (IOP) pressure, the number of anti-glaucoma drugs used, the frequency of steroid eye drops used daily and side effects over a 12-month follow-up period. Side effects after applying topical 2% ganciclovir were recorded using questionnaires and eye examination.

Table 1 clinical manifestations of patients with CMV anterior uveitis before and after topical 2%ganciclovir therapy.

Patient no.	Clinical before topical 2% ganciclovir						Clinical after topical 2% ganciclovir 12 months						Status of topical ganciclovir at 12 mo	No. of recurrent	Trabec MMC Mo.
	VA	cell	kps	IOP	G	S	VA	cell	kps	IOP	G	S			
1	20/25	1+	+	17	3	4	20/25	0	-	17	2	0	off	1	
2	20/32	0.5	+	30	4	4	20/20	0	-	16	1	1	qid	2	
3	20/20	0.5	+	32	2	10	20/20	0	-	12	0	0	off	0	
4	20/60	1	+	28	4	2	20/25	0	-	11	1	0	qid	0	
5	20/40	0.5	+	13	4	4	20/25	0	-	10	0	2	off (at6mo)	1	9 th
6	20/32	0.5	+	40	3	6	20/20	0	+	13	0	0	tid	1	
7	20/25	0	+	14	2	4	20/20	0	-	8	0	0	tid	1	
8	HM	4+	-	33	6	16	20/200	0.5	-	16	2	4	qid	0	
9	20/100	0.5	+	44	4	4	20/50	0	-	6	0	0	off	0	2 nd
10	FC2'	0.5	+	15	1	4	HM	0	-	1	1	1	off	0	
11	FC1'	0	+	15	0	4	FC1'	0	-	17	2	4	qid (6 mo)	1	

G = the number of anti-glaucoma drugs used, S = the frequency of steroid eye drops

Table 2 Clinical response of 2%ganciclovir eye drop compare to baseline 1wk to 12 months

	Baseline	1 wk	4 wk	2 month	3 month	4 month	5 month	6 month
	Median (Min-Max)	Median (Min-Max)	Median (Min-Max)	Median (Min-Max)	Median (Min-Max)	Median (Min-Max)	Median (Min-Max)	Median (Min-Max)
VA	0.2(0-1.4)	0.3(0-1.4)	0.5(0-1.1)	0.2(0-1.3)	0.4(0-1.3)	0.2(0-1.1)	0.2(0-1.1)	0.1(0-1.1)
		<i>p</i> 0.031	<i>p</i> 0.095	<i>p</i> 0.078	<i>p</i> 0.065	<i>p</i> 0.065	<i>p</i> 0.020	<i>p</i> 0.011
Cell	0.5(0-4)	0(0-3)	0(0-1)	0(0-1)	0(0-0.5)	0(0-2)	0(0-1)	0(0-1)
		<i>p</i> 0.058	<i>p</i> 0.034	<i>p</i> 0.020	<i>p</i> 0.007	<i>p</i> 0.008	<i>p</i> 0.034	<i>p</i> 0.007
IOP	28(14-44)	13(12-20)	15(8-18)	14(8-16)	11(8-24)	14(8-16)	14(9-29)	14(7-18)
		<i>p</i> 0.013	<i>p</i> 0.012	<i>p</i> 0.006	<i>p</i> 0.11	<i>p</i> 0.005	<i>p</i> 0.012	<i>p</i> 0.003
Antiglaucoma-drug	3(0-6)	2(0-5)	2(0-4)	2(0-4)	1(0-3)	1(0-4)	1(0-4)	1(0-3)
		<i>p</i> 0.024	<i>p</i> 0.010	<i>p</i> 0.011	<i>p</i> 0.007	<i>p</i> 0.011	<i>p</i> 0.011	<i>p</i> 0.007
#Steroid	4(2-16)	4(0-16)	2(0-8)	2(0-4)	2(0-4)	2(0-8)	2(0-4)	1(0-4)
		<i>P</i> 0.176	<i>p</i> 0.017	<i>p</i> 0.018	<i>p</i> 0.11	<i>p</i> 0.005	<i>p</i> 0.007	<i>p</i> 0.005
Kps present	10(90.9%)	4(36.36%)	0	0	0	0	1(9.09%)	0
		<i>p</i> 0.031	NA	NA	NA	NA	<i>P</i> 0.004	NA

Wilcoxon Signed Ranks test
 McNemar test

	n	Baseline	7 month	8 month	9 month	10 month	11 month	12 month
		Median (Min-Max)	Median (Min-Max)	Median (Min-Max)	Median (Min-Max)	Median (Min-Max)	Median (Min-Max)	Median (Min-Max)
VA	9	0.2(0-1.4)	0(0-1.1)	0(0-1.1)	0(0-1.1)	0(0-1.1)	0(0-1.1)	0(0-1.1)
			<i>p</i> 0.017	<i>p</i> 0.017	<i>p</i> 0.017	<i>p</i> 0.017	<i>p</i> 0.017	<i>p</i> 0.017
Cell	9	0.5(0-4)	0(0-1)	0(0-1)	0(0-0.5)	0(0-0)	0(0-0.5)	0(0-0.5)
			<i>p</i> 0.034	<i>p</i> 0.008	<i>p</i> 0.021	<i>p</i> 0.008	<i>p</i> 0.014	<i>p</i> 0.008
IOP	9	28(14-44)	14(8-17)	12(6-18)	12(9-17)	15(1-24)	14(1-24)	12(1-17)
			<i>p</i> 0.013	<i>p</i> 0.011	<i>p</i> 0.008	<i>p</i> 0.021	<i>p</i> 0.018	<i>p</i> 0.012
Antiglaucoma-drug	9	3(1-6)	1(0-2)	1(0-2)	1(0-2)	1(0-2)	0(0-2)	0(0-2)
			<i>p</i> 0.011	<i>p</i> 0.011	<i>p</i> 0.011	<i>p</i> 0.012	<i>p</i> 0.007	<i>p</i> 0.007
#Steroid	9	4(2-16)	0(0-6)	0(0-4)	0(0-4)	0(0-4)	0(0-4)	0(0-4)
			<i>p</i> 0.024	<i>p</i> 0.012	<i>p</i> 0.012	<i>p</i> 0.011	<i>p</i> 0.016	<i>p</i> 0.011
Kps present	9	10(90.9%)	1(11.11%)	0	1(11.11%)	2(22.22%)	2(22.22%)	2(22.22%)
			<i>P</i> 0.016	NA	<i>P</i> 0.016	<i>P</i> 0.031	<i>P</i> 0.031	<i>P</i> 0.031

Results: Mean age was 49.0±17.8 years. IOP, number of antiglaucoma drugs used and keratic precipitates decreased significantly at first week (*p*<0.013, *p*<0.024,*p*<0.031) followed by decreased anterior chamber cells and significantly reduced frequency of applying steroid eye drops at four weeks (*p*<0.034, *p*<0.017). Visual acuity significantly improved at five months continuously. All clinical improvement was maintained to 12 months and keratic precipitates were eliminated in 90% of all cases. However, in 27% of discontinued medicine cases, inflammation was recurrent. No significance was observed in all factors between recurrent and nonrecurrent groups. The most common side effect was eye irritation (27.27%). No severe complications from the medicine was detected.

Conclusion: Extemporaneous preparation topical 2% ganciclovir was effective and safely controlled CMV anterior uveitis. The medication is noninvasive, economical and convenient for hospitals where commercial topical ganciclovir is unavailable.

Reference

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