HYPOTENSIVE EFFECT OF TOPICAL BRIMONIDINE TARTARATE ON INTRA-OCULAR PRESSURE SPIKES FOLLOWING INTRAVITREAL INJECTION OF RANIBIZUMAB

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INTRODUCTION

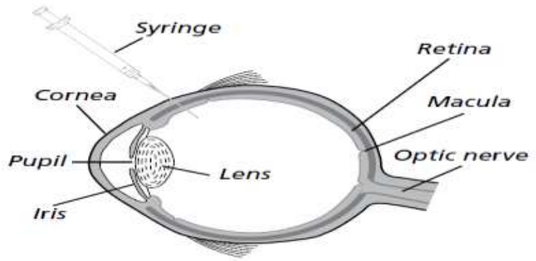
Intra-vitreal injections are common in ophthalmology practiceυ and injection numbers are rapidly growing. Pharmacology of Ranibizumab Ranibizumab (LucentisR, Genentech, South San Francisco,υ USA) is a recombinant humanized monoclonal immunoglobulin G1 (IgG1) - isotype antibody fragment that inhibits human vascular endothelial growth factor (VEGF). It is produced as a 48 kDa antibody fragment, in E. coli, using expression plasmids. It is approved for intravitreal injection for choroidal neovascularization due to age-related macular degeneration, Macular edema due to Diabetic retinopathy and Vein occlusion with its dose 0.5/0.05ml (licensed dose in EU) or 0.3/0.05ml (USA). Intra-ocular pressure changes after intra vitreal injection of Ranibizumab (Lucentis) Intra-Ocular Pressure (IOP) is a result of balance betweenυ production of aqueous humor and the drainage of aqueous humor The volume of the vitreous cavity in the human eye isυ approximately 4 ml, and the volume of medication injected into the vitreous ranges from 0.05 to 0.1 ml. Therefore, depending on the volume infused, the increase in fluid volume within the vitreous cavity is approximately 1.25%–2.5%. In clinical practice this frequently translates into short-term elevation of IOP. Brimonidine Tartarate Mechanism of action It's topical alpha2-adrenergic with its precursor clonidine (nasalυ decongestant drop) that was discovered by Boehringer Ingelheim and Helmut Stähle in the 1960s which lowering IOP by reducing aqueous humor production and increase uveoscleral outflow which not occur with apraclonidine hydrochloride.

AIM OF THE WORK

To study the effect of topical brimonidine tartrate prophylaxis on intraocular pressure (IOP) spikes following intravitreal injection of Ranibizumab (Lucentis) 0.5mg/0.05ml.

SUBJECTS AND METHODS

This was prospective case series study, was conducted on one hundred non glaucomatous eyes of one hundred patients, undergo full ophthalmic examination including visual acuity and intra-ocular pressure (IOP) measurement. The candidates who were enrolled in the study were classified into two groups each of fifty eyes with odd and even number. Those with odd numbers received topical brimonidine tartarate twenty minutes before the intravitreal injection while those with even numbers didn't receive topical brimonidine tartarate.



RESULTS

Table 1: Diagnosis distribution of the two studied groups

	Group A (n=50)	Group B (n=50)	T	p
Age-related macular degeneration	18 (36%)	20 (40%)	1.21	.750
Diabetic macular edema	14 (28%)	17 (34%)		
BRVO	10 (20%)	7 (14%)		
Choroidal neovascularization	8 (16%)	6 (12%)		

Table 2: Post-injection intra-ocular pressure measures among the two studied groups.

IOP		Group A (n=50)	Group B (n=50)	T	p
I day pre Mean ± SD	Injected eye	14.6 ± 1.87	14.78 ± 1.92	.474	.636
	Fellow eye	13.6 ± 1.87	13.78 ± 1.92	.474	.600
30 min pre Mean ± SD	Injected eye	14.81± 3.87	15.09± 3.62	1.116	.513
	Fellow eye	15.95 ±2.89	14.17 ±1.56	1.091	.425
30 min post Mean ± SD	Injected eye	16.28 ± 3.18	17.56 ± 2.68	2.74	.038
	Fellow eye	20.28 ± 1.87	17.56 ± 1.94	4.92	.000
1 day post Mean ± SD	Injected eye	16.12±2.11	15.82 ±1.99	3.01	.007
	Fellow eye	16.04 ± 1.50	14.84± 2.14	3.29	.002
1 week post Mean ± SD	Injectedeye	15.06 ± 1.62	14.76 ± 2.15	.787	.817
	Fellow eye	14.06 ± 1.99	13.98± 2.22	.723	.850
1 month post Mean ± SD	Injectedeye	14.98 ± 1.76	14.64 ± 1.64	1.027	.784
	Fellow eye	13.86± 1.81	13.64 ± 1.59	1.110	.772

CONCLUSION

Topical brimonidine tartrate is effectively reduces intraocular pressure (IOP) spikes following intravitreal injection of Ranibizumab (Lucentis) 0.5mg / 0.05ml. This method of prophylaxis can be readily adopted into current practice of intravitreal injections of anti VEGF agents.