OPT 699

SPECIAL STUDIES

PRE-PUPILLARY AND POST-PUPILLARY DILATION IOP'S WITH 1.0% TROPICAMIDE

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The purpose of our topic is to determine if 1.0% tropicamide significantly affects intraocular pressure (IOP) when used as a mydriatic agent for pupillary dilation. The parameters and aspects of the study will be discussed later in this paper.

Tropicamide in the 1.0% concentration is a rapidly acting mydriatic and cycloplegic agent. Tropicamide is the preferred anticholenergic agent for use in routine pupillary dilation. Tropicamide has the shortest latency and produces the greatest dilation in the least time as compared with the commonly used mydriatics such as cyclopentolate. Maximum mydriasis usually occurs in 15 to 30 minutes, and the duration of mydriasis is approximately 4 to 6 hours. The maximum cycloplegic effect occurs 30 to 45 minutes after installation, but quickly begins to decrease. When compared to other mydriatics, tropicamide appears to demonstrate a much more rapid and complete mydriasis. The much shorter mydriatic time as well as the intense cycloplegia associated with other cycloplegic agents are of benefit to the patient. The patient may be visually disabled for only a few hours rather than an entire day. Tropicamide is an extremely safe drug virtually free of systemic toxicity when topically administered.

The study took place at the State Prison of Southern Michigan in Jackson, Michigan and the Veterans Administration Medical Center in Battle Creek, Michigan. Each patient was aware that they would receive one drop of 1.0% tropicamide so that a dilated fundus exam could be performed. They were also informed that their intraocular pressure would be recorded five minutes before and twenty five minutes after installation of the agent. A complete history was collected from each patient including such variables as age, race, sex, ocular and systemic history, current medications, and known drug allergies. If any smoking or consumption of food or drink had taken place less than thirty minutes prior to the IOP recording, it was noted and those patients were removed from the patient pool. This parameter may have been overly cautious, however due to the fact that all subjects had undergone a complete eye examination including refraction, Von Herick anterior angle chamber angle evaluation, and biomicroscopy. The time frame in which these tests were performed would have made it impossible for the patient to have consumed any food or used tobacco products thirty minutes prior to the IOP measurement. All IOP measured for this study were done so by applanation tonometry.

A total of forty seven took part in the study. Table #1 lists the patients age, sex, race, diabetic of glaucoma status, Von Herick angle evaluation before applanation, and applanation tonometry five minutes before and twenty five minutes after

installation of 1.0% tropicamide. Table #2 lists definite indications for dilation. Table #3 lists definite contraindications for dilation. Table #4 lists indicators for dilation with caution.

TABLE #1

AGE	SEX - RACE	GLAU	DIAB	ANGLE	IOP'S			
					PRE		POST	
					R	L	R	L
22	M B			4	12	13	12	13
27	M B			4	16	16	16	17
26	M B			4	15	15	17	15
36	M B			4	21	20	20	20
47	M B			3	17	17	17	17
30	M W			4	11	11	11	11
24	M B			4	15	16	15	15
35	M B			4	12	12	13	13
78	M W	Y		3	16	16	17	17
55	M W	Y		4	18	18	18	19
40	M B			4	17	16	17	17

AGE	SEX - RACE	GLAU	DIAB	ANGLE	IOP'S			
					PRE		POST	
					R	L	R	L
33	M B			4	14	14	15	15
44	M B			4	19	19	18	18
32	M B			4	15	13	15	14
28	M W			3	15	16	15	16
49	M B			4	12	12	12	12
25	M B			4	15	14	15	14
28	M B			4	16	16	16	16
29	M B			4	20	20	20	20
41	M W			4	12	11	11	12
28	M B			4	16	16	16	16
35	M B			4	10	11	11	12
61	M W		Y	3	14	14	15	15
65	M B		Y	4	10	10	10	11
57	M B		Y	2	16	16	16	16
34	M W		Y	4	17	18	18	18
36	M B			4	16	16	16	16
23	M B			4	10	11	10	12
29	M B			4	14	14	14	14
57	M B			4	17	17	17	17
30	M B			4	16	16	17	17

AGE	SEX - RACE	GLAU	DIAB	ANGLE	IOP'S			
					PRE		POST	
					R	L	R	L
35	M W			4	21	23	22	22
36	M B			4	14	16	14	16
29	M B			4	19	19	19	19
35	M B			4	15	15	16	16
60	M W	Y		3	13	16	13	15
79	M W	Y		3	21	22	20	23
44	M W		Y	4	19	20	19	20
69	M W		Y	3	14	10	13	12
44	M B			3	18	20	19	19
34	M B			4	19	20	19	19
40	M B			4	22	22	22	22
54	M B			4	17	17	17	17
51	M W			4	14	16	15	17
58	M W			4	18	18	18	18
53	M B			4	21	21	20	20
24	M B			4	19	19	18	18

TABLE #2

DEFINITE INDICATIONS FOR DIALATION

-sudden visual acuity reduction

-sudden visual field compromise

-prechiasmal visual field defect

-flashes and/or floaters

-presense of a cataract preventing a good view of the retina

-all patients with diabetes

-previous diagnosis of lattice degeneration, retinal holes, or prior retinal detachment

-Marcus Gunn pupil

-trauma to the globe and /or head

-history of metastatic cancer

-patients with unexplained headaches

-history of utilization of:

1. catarogenic substances
2. retinotoxic substances
3. neurotoxic substances

TABLE #3

DEFINITE CONTRAINDICATIONS FOR DILATION

-iris-fixed intraocular lens implant

-gonioscopically narrow to closed angles/Plateau iris

-history of previous difficulties with dilation (pain)

-subluxated crystalline lens

-subluxated posterior chamber intraocular lens implant

TABLE #4

INDICATIONS FOR DILATION WITH CAUTION

-marginal angles with a history of questionable sub-acute angle closure glaucoma

-positive shadow sign

-anterior chamber intraocular lens implants/Pupillary trap

-use of tri-cyclic antidepressants or monoamine oxidase inhibitors if using an adrenergic agent

The findings reveal very little, if any, significant change in intraocular pressure at five minutes before and twenty five minutes after dilation of the patients with 1.0% tropicamide. Even the patients with traditionally high risk factors for IOP fluctuation, glaucoma and diabetes, showed no significant change overall. These patients showed no more change in IOP than did the patients with no ocular or systemic problems.

The results of the current study may inadvertently be influenced by several factors. We understand that for a subject pool consisting of various races would have been preferable to the high percentage of blacks that took part in the study, however, due to the nature of the centers at which the study was conducted, this problem could not be avoided. Furthermore, the limited population variability prevents projection of the data to a more universal group which in fact could lead to erroneous conclusions had a slightly larger percentage of caucasian patients been available.