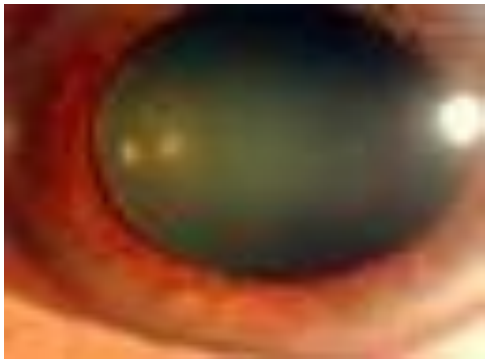
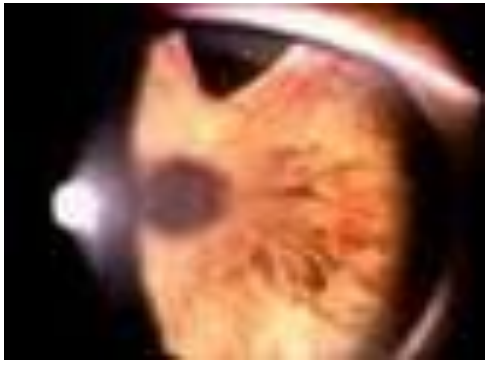
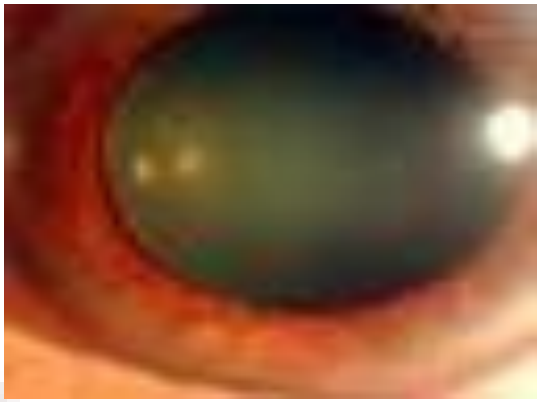


A COMPARATIVE STUDY BETWEEN DCPC & AGVI IN NVG

PRESENTED BY

Dr. FAISAL ALMOBARAK, MD





- NVG is a refractory glaucoma which occurs secondary to retinal ischemia with subsequent release of angiogenic factors .

  Seos et al 2002 , Moisseiev et al 1996

- The most common causes of NVG are DR & RVO . *Evans et al 1993*

- Early detection of NV & application of PRP or intravitreal anti-VEGF is the most effective management . *Sivak-Callcott et al 2001 , Iliev et al 2006*

- Cyclodestructive procedures & tube-shunt implants are reserved for refractory more conventional treatments .

CYCLODESTRUCTION

Cryotherapy

- High risk vision threatening complications

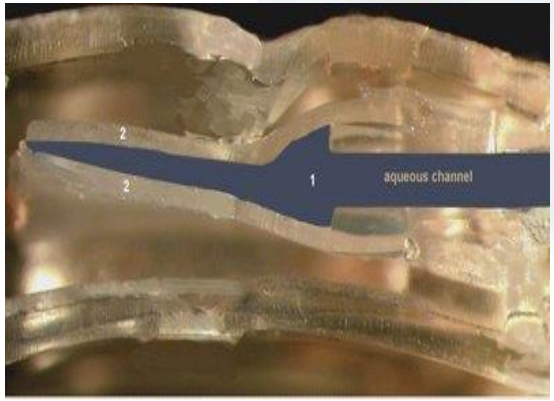
DCPC

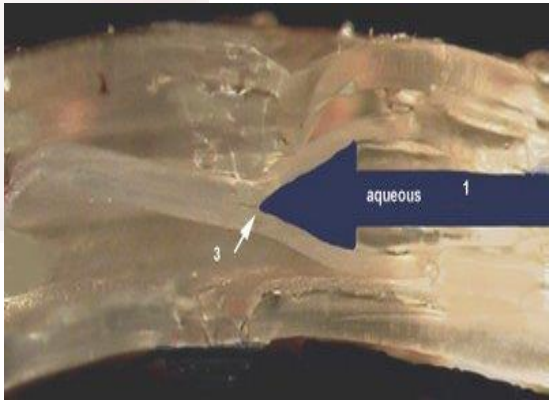
Transcleral application of infrared light which gets absorped by the pigmented epithelial cells of the CB resulting in destruction & coagulative necrosis of the epithelium & stroma .

- Corneal edema
- Hypotony
- Phthisis bulbi

- The AGVI theoritically restricts flow until a pressure of greater than 8 to 12 mmhg is exerted upon it .

- It has a comparable success rates to other glaucoma drainage devices for refractory glaucoma with less hypotony observed in the early postoperative period .





Subjects & Methods

Purpose: To prospectively compare the outcome of DCPC & AGVI in NVG .

Design: Randomized prospective study.

- All patients underwent a beseline ophthalmologic complete examination : VA , IOP by Goldman applanation tonometry , SLE & fundus examination .

Inclusion criteria were:

- NVG secondary to PDR or RVO
- Ineffective IOP lowering by maximally tolerated medications
- Painful & poorly sighted eyes with uncontrolled IOP

❖ Patients were randomly assigned to receive either DCPC or AGVI by the same surgeons by using a list of random numbers (N.Y DCPC treatment & I.S.Y AGVI)

AGVI :

- Model S2 used
- Fornix-based conjunctival flap
- Tube was irrigated with saline solution to open the valve mechanism

DCPC treatment parameters :

- Duration of 2 seconds
- Power 1500 mW , stepwise increase (100 mW increments) up to an audible tissue disruption followed by stepwise reduction to just below this level
- The normal treatment consisted of 16-20 applications over 270 degree

Surgical success:

- IOP less than 21 mmhg & greater than 5 mmhg without additional glaucoma surgery & without loss of LP

Treatment failure:

- Repeated DCPC
- Needling procedures

- ***Patients were examined at 1 , 3 , 6 , 12 & 24 months after the treatment procedure***
- ***33 patients underwent DCPC & 33 underwent AGVI***
- ***8 patients in DCPC group were lost during the follow-up & excluded from the study***

Results

VARIABLES	DCPC	AGVI	P VALUE
# EYES	33	33	>0.05
MEAN AGE	60 ± 11.7	57.2 ± 10.3	>0.05
SEX			
M	17	18	>0.05
F	16	15	>0.05
PREOP IOP	43.4 ± 11.9	43.3 ± 7.4	>0.05
POSTOP IOP (24 m)	18.72 ± 13.5	22.88 ± 7.3	>0.05
PREOP. # OF MED.	2.6 ± 0.4	3.3 ± 0.4	>0.2
POSTOP. # OF MED. (24m)	1.8 ± 1	2 ± 1.4	>0.6
SUCCESS RATE AT 12 m	71%	61.3%	>0.05
SUCCESS RATE AT 24 m	63.6%	59.3%	>0.05
KAPLAN-MEIER SURVIVAL ANALYSIS PROBABILITY OF SUCCESS AT 24 m	61.18%	59.26%	>0.05 Log-rank test

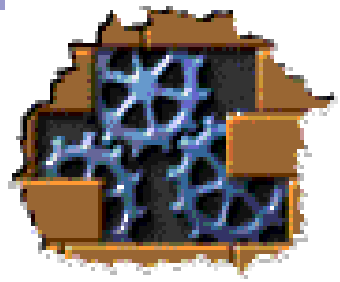
POSTOPERATIVE COMPLICATIONS IN DCPC GROUP

COMPLICATION	NUMBER (%) (N = 25)
ANTERIOR SEGMENT INFLAMMATION	5 (20%)
NEUROTROPHIC KERATITIS	2 (8%)
HYPOTONY	3 (12%)

POSTOPERATIVE COMPLICATIONS IN AGVI GROUP

COMPLICATION	NUMBER (%) (N = 33)
ENCAPSULATED BLEB	3 (9%)
PHTHISIS BULBI	2 (6%)
HYPHEMA	7 (21%)
TUBE OCCLUSION	3 (9%)
HYPOTONY	1 (3%)
CHOROIDAL EFFUSION	1 (3%)

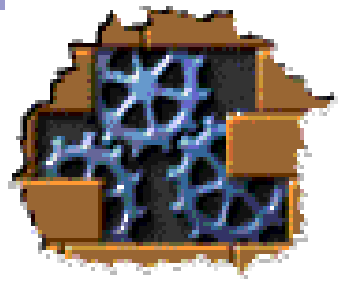
TIME	DCPC		AGVI		P value
	IOP	#	IOP	#	
PREOP.	43.44 ± 11.98	25	43.3 ± 7.49	33	0.95
1	25.64 ± 14.02	25	17.45 ± 12.1	33	0.02
3	18.44 ± 10.53	25	18.36 ± 11.3	33	0.98
6	17 ± 12.05	25	19.72 ± 8.92	33	0.36
12	16.5 ± 11.3	25	22.09 ± 7.68	33	0.07
24	18.72 ± 13.5	25	22.88 ± 7.27	33	0.22



Discussion

- Both DCPC and AGV implantation achieved a marked IOP lowering effect [from a mean preoperative IOP of 43.44 ± 13.5mmHg to 18.72 mmHg at last visit in DCPC group (58.1% IOP reduction) and preoperative IOP of 43.3 ± 7.49 mmHg to a 22.88 ± 7.27 mm Hg at last visit in AGV group (48.8 % IOP reduction)] .

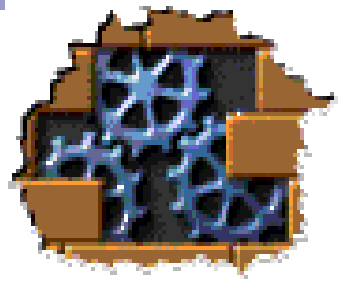
- IOP was lower in the AGV group compared with DCPC eyes within the first month postoperatively (p = 0.02). But , the IOP rose in both groups and was equivalent at 3 months & then slightly higher in the AGVI after one year .



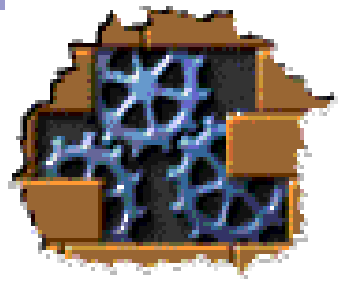
- The success rates at 24 months were 63.6% and 59.3% for the DCPC and AGV groups, respectively ($p > 0.05$)

- Recently, Lima et al compared long-term results of endoscopic DCPC and AGVI and found that there was no difference in the success rates.

- Oguri et al analyzed the outcome of DCPC in 21 eyes with NVG & found that the probability of successful IOP control per eye, estimated by the Kaplan-Meier analysis, at 3 years after treatment was 55% .

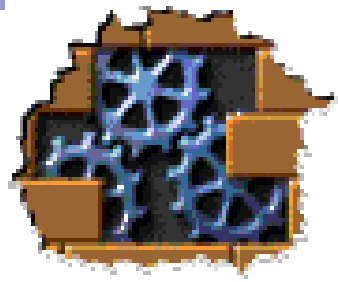


- Nabili & Kirkness achieved about 50 % IOP reduction with DCPC
- These results of IOP control were comparable with this study & confirms the efficacy of DCPC in NVG
- Eyes that underwent AGV implantation had more complications than those treated with DCPC
- The main complications in the DCPC group were anterior chamber inflammation , neurotrophic keratitis , and hypotony ; whereas , in the AGV group main complications were hyphema , tube occlusion , encapsulated bleb, phthisis bulbi , hypotony , and choroidal effusion



- In Schwartz's study, tube shunt implantation has more complications not observed in DCPC procedures, such as diplopia , tube blockage, tube exposure, and cystic bleb formation, similar to the results of this study

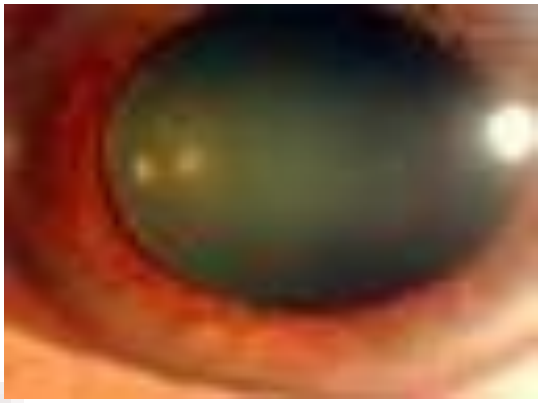
- In a recent study by Mistlberger et al , after DCPC the most frequently observed complication was anterior chamber inflammation , paralleling the findings of this study



- In 15 of patients [6 eyes (24%) in the DCPC group and 9 eyes (27%) in AGV group] VA decreased

- Non of the patients lost VA as direct consequence of DCPC or AGVI . The loss of VA was due to maturation of cataract, and/or progression of advanced glaucoma despite statisfactory IOP regulation, as also reported by others.

Conclusion



- In conclusion , DCPC may be a safe & efficient modality in treating refractory glaucoma compared with AGVI .

- DCPC & AGVI lower the IOP in NVG in a similar manner . The study demonstrates the efficacy & safety of contact DCPC to reduce IOP in patients with advance glaucoma .


Thank you