Original Research Paper

Volume - 10 | Issue - 12 | December - 2020 | PRINT ISSN No. 2249 - 555X | DOI : 10.36106/ijar

Ophthalmology

EFFICACY OF INTRACAMERAL AMPHOTERICIN WITH TOPICAL AMPHOTERICIN VS.TOPICAL AMPHOTERICIN ALONE IN TREATMENT OF FUNGAL CORNEAL ULCER

Dr. Padmapriya	Regional Institute Of Ophthalmology & Government Ophthalmic Hospital, Madras Medical College, Egmore, Chennai.
Dr. Rohini*	Regional Institute Of Ophthalmology & Government Ophthalmic Hospital, Madras Medical College Egmore, Chennai. *Corresponding Author
Dr. Krithika Sundari	Regional Institute Of Ophthalmology & Government Ophthalmic Hospital, ,madras Medical College, Egmore, Chennai.

ABSTRACT **Purpose:** To compare the efficacy of Intracameral Amphotericin and topical amphotericin vs.topical amphotericin drops alone in the treatment of mycotic keratitis by assessing the structural outcome of the ulcer.

Methods: A prospective case control study was done, which included cases of fungal corneal ulcer . Study group included corneal ulcer cases referred to cornea clinic of tertiary care centre. In group A,15 cases were selected at random for Intracameral procedure with 5 micrograms of Amphotericin along with topical 0.15% Amphotericin drops and in group B, 15 cases were treated only with topical Amphotericin eye drops 0.15%. All ulcer were matched for their size and the average size ranged from 5-6mm Central / Para central ulcer with minimal hypopyon. All the cases were followed till the ulcer healed.

Results: 12 cases healed & 3 cases did not heal with Intracameral Amphotericin.10 cases healed & 5 cases did not heal with topical drops. The chronicity and increased severity of the disease needed surgical management.

Conclusion: Intracameral amphotericin hastens the healing time of corneal ulcer (1 week) when compared to topical treatment, which took on an average of 3-4 weeks.

KEYWORDS : fungal pathogens, intracameral amphotericin B, hypopyon.

INTRODUCTION

Fungal corneal ulcer is a significant cause of ocular morbidity in people engaged in agriculture. According to the World Health Organization (WHO) corneal diseases are a major cause of vision loss and blindness, second only to cataract in overall importance[1].The most common implicated fungi are Aspergillus and Fusarium species. Patients often present with hypopyon which usually contains fungal filaments. The treatment is difficult owing to poor intraocular penetration of most available antifungal agents[1]for intracameral procedure with 5 micrograms of Amphotericin along with topical 0.15%Amphotericin drops.15 cases were treated only with topical Amphotericin eye drops 0.15%.

Outcomes of the treatment were evaluated with reference to the following:

Primary outcome:

It was evaluated in terms of the timefor epithelialization with a decrease in infiltrates and ulcer resolution.Patients were followed up for 4 weeks. Clinical follow-up was done with reference to relief in symptoms, decrease in size of the ulcer assessed by fluorescence staining; decrease in infiltration, corneal edema, and anterior chamber reaction, decrease in the size of hypopyon; progression/any new complication of the corneal ulcer; and perforation, sloughing, and necrosis. Final structural outcomes was evaluated at the end of 4 weeks. Response to the treatment was compared and evaluated. All the cases were followed till the ulcer healed.

CASE DETAILS

SIZE OF ULCER

TABLE -1

Lengths	Group A	Group B
5 mm	0	1
5 -6 mm	12	12
Subtotal Ulcer	3	2

SMEAR CULTURE REPORT

TABLE -2

Group A Group B Smear positive, Culture positive 912Smear negative, Culture positive 43Smear negative, culture negative20In cases one smear negative / Culture negative turned out to be acanthamoeba positive – taken for TKP on its potential as intracameral agent[5] in treatment of fungal corneal ulcers. There have been studies showing good results[6] and in this study we want to further compare the efficacy of intracameral amphotericin with topical amphotericin vs topical amphotericin drops alone.

AIM

To compare the efficacy of intracameral Amphotericin with topical amphotericin vs. topical mphotericin drops alone by assessing the structural outcomes in the treatment of fungal corned ulcers.

MATERIALS &METHODS

A prospective case-control study was done, which included 30 eyes of 30 patients with a fungal corneal ulcer. Studygroup included corneal ulcer cases referred to cornea clinic of a tertiary eye care hospital.

The inclusion criteria were as follows:

(a) corneal ulcers presenting with a history of Trauma from organic matter;

(b) ulcers not responding to topical and systemic antifungal medications for 7 days (with a history of trauma from organic matter); and

(c) the average size ranged from 5-6mm Central /Para central ulcer with minimal hypopyon.

History regarding the predisposing factors was evaluated with specific reference to trauma, prolonged topical steroid use, previous ocular pathology, immunocompromised state any prior treatment is taken, and diabetes mellitus.Demographic details of the patients were recorded. Detailed ocular examination was done with special emphasis on corneal examination in slit lamp including the following:

(a) site of ulcer: central/ paracentral;

(b) number: single lesion/satellite lesions

(c) size of ulcer: 5-6mm

Before starting treatment, corneal scrapings and conjunctival swab samples were taken for microbiological evaluation. Patients were started on appropriate broad-spectrumAntifungal and antibacterial therapy and were observed during the study period. 15 cases were selected at random.

RESULTS

RESPONSE TO TREATMENT

Table-3

	Group A	Group B
Healing	12	10
Non healing	3	5

DURATION OF HEALING

Table -4

	Group A	Group B
<1 week	10	-

1-2 week	2	-
2-3week	-	6
>3week	-	4

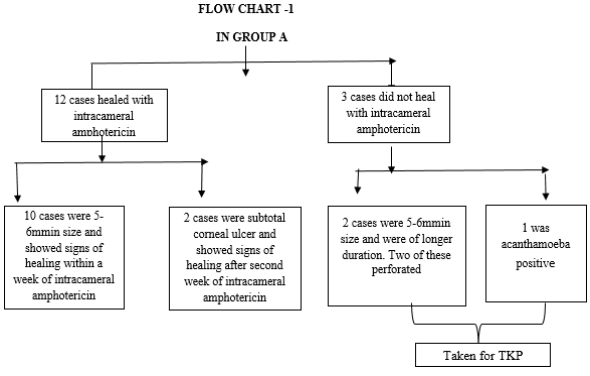
PREPARATION & PROCEDURE OF INTRACAMERAL AMPHOTERICIN

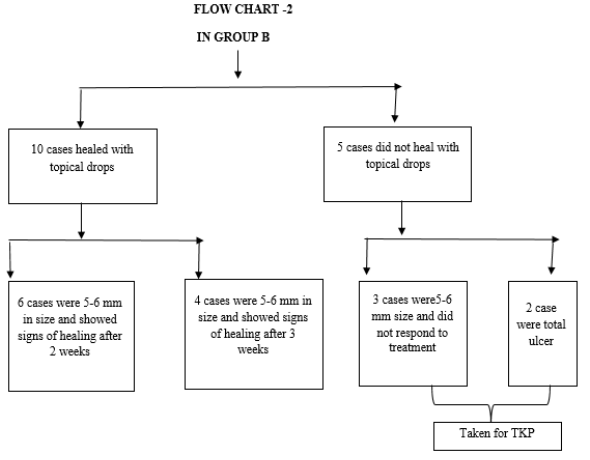
1 vial of Amphotericin (iv) has 50 mg Mix 10 ml of saline to 50mg So , 5 mg/ml 0.5 mg or 500 Micrograms in 0.1 ml To this 0.l ml add 9.9 ml of saline So 500 Micrograms in 10ml 50 Micrograms in 1 ml 5 Micrograms in 0.1ml

PROCEDURE

Anterior chamber paracentesis for intracameral drug injection was performed under an operating microscope in sterile conditions. Topical anaesthesia was achieved using 0.5% proparacaine instilled at 5-minute intervals 3 times before injection. Anterior chamber re-entry was made with a 26-gauge needle commonly from the temporal limbus, as this is the most accessible site. After aspiration of the exudates ' from the anterior chamber, amphotericin B was injected in the dose of0.1 ml of amphotericin (5 Micrograms). Repeat injection was given based on clinical response. In nonresponding cases, a repeat injection may be considered after an interval of 3to6 days.

Response to intracameral amphotericin B was monitored by the decrease in the size of the epithelial defect, decrease in the size of the infiltrate and decrease in the size of hypopyon. Patients were followed up for 4 weeks. Clinical follow-up was done with reference to relief in symptoms, decrease in size of the ulcer assessed by fluorescence staining, decrease in infiltration, corneal oedema, and anterior chamber reaction; decrease in the size of hypopyon; progression/any new complication of the corneal ulcer; and perforation, sloughing, and necrosis. Final structural and visual outcomes were evaluated at the end of 4 weeks.





CONCLUSION

In summary,12 cases healed & 3 cases did not heal with intracameral amphotericin B.10 cases healed & 5 cases did not heal with topical drops. The chronicity and increased severity of the disease needed surgical management. AC wash with amphotericin along with topical drops hastens the recovery of corneal ulcer (1 week) when compared to topical treatment, which took on an average of3-4 weeks.In a country like India, where fungal corneal ulcer account for 44% of total corneal ulcers[12], an effective and economical treatment option is imperative. Thus, we concluded that intracameral amphotericin B injection can reduce time to disappearance of hypopyon and time tofinal improvement in the treatment of fungal keratitis. The merits of intracameral amphotericin B can be summarized as follows:

(a) The injections are easy to prepare and administer

(b) Minimum learning curve can be repeated safely.

(c)Injections provide optimum concentrations of the drug in the anterior chamber and deep stromal layers in a short time.

(d) Intracameral amphotericin B as compared with topical medication has better fungicidal action[13].

(e) Because a minimum dose is injected, toxicity to the surrounding tissues is minimal[14].

Initiation of adequate and timely local and systemic treatment for the management of fungal keratitis can go a long way in the prevention of complications and its sequelae. In cases where response to local and systemic antifungal treatment is not evident after 7 days, Intracameral amphotericin B can be safely administered to prevent ulcer progression and the development of complications. Furthermore, intracameral amphotericin B serves as a safe and simple method for adequate treatment of corneal ulcers and gives good visual and structural outcomes[13]. In addition, it avoids emergency penetrating keratoplasty in the presence of active fungal infection and leaves a margin for optical PKP at a later date. As a simple and cost-effective procedure with better outcomes, it should be readily utilized to overcome the burden of corneal blindness.

REFERENCES

1. Whitcher JP, Srinivasan M, Upadhyay MP. Corneal blindness: a global perspective. Bull World Health Organ. 2001;79:214Y221
2. Tilak R, Singh A, Maurya OP, et al. Mycotic keratitis in India: a five-year retrospective study. J Infect Dev Ctries. 2010;4: 171Y174.
3. Abad JC, Foster CS. Fungal keratitis. Int Ophthalmol Clin. 1996;36:1Y15.
4. Resnikoff S, Pascolini D, Etya'ale D, et al. Global data on visual impairment in the year 2002. Bull World Health Organ. 2004;82:844Y851.
5. Rekhi GS, Kulshreshtha OP. Common causes of blindness: a pilot survey in Jaipur, Rajasthan. Indian J Ophthalmol. 1991;39: 108Y111.
6. Yee RW, Boone DE, Rinaldi MG. Antifungal agents. In: Tabbara KF, Hyndiuk RA, eds. Infections of the Eye. Boston, MA: Little Brown; 1996:249Y267.
7. Kaushik S, Ram J, Brar GS, et al. Intracameral amphotericin B. Initial experience in severe keratomycosis. Cornea. 2001;20: 715Y719
8. Kuriakose T, Kothari M, Paul P, et al. Intracameral amphotericin B injection in the management of deep keratomycosis. Cornea. 2002;21:653Y656.
9. Yilmaz S. Efficacy of intracameral amphotericin B injection in the management of refractory keratomycosis and endophthalmitis. Cornea. 2007;26:398Y402.
10. Yoon KC, Jeong IY, Im SK, et al. Therapeutic effect of intracameral amphotericin B injection in the treatment of fungal keratitis. Cornea. 2007;26:814Y818
11. Shao Y, Yao Y, Pei CG, et al. Therapeutic efficacy of ICAMB in keratomycosis. Int J Ophthalmol. 2010;3:257Y260.
12. Srinivasan R, Kanungo R, Goyal JL. Spectrum of oculomycosis in South India. Acta Ophthalmol (Copenh). 1991;69:744Y749
13. Green WR, Bennett JE, Goos RD. Ocular penetration of amphotericin B. Arch Ophthalmol. 1965;73:769Y775.