

TREATMENT OF OTOMYCOSIS WITH ACETIC ACID AND BORIC ACID

OTOMİKOZUN ASETİK ASİT VE BORİK ASİTLE TEDAVİSİ

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Özet: Otomikoz olarak teşhis edilen 61 hasta, gün aşırı kulak aspirasyonu ve iki antiseptik ajandan biri (Asetik asit ve Borik asit) kullanılarak üç hafta içinde tedavi edildi. Hastalar remisyona sağlanıncaya kadar gün aşırı kontrol edildi ve değerlendirildi. Bu çalışma ile dış kulak yolundaki fungal enfeksiyonların primer antifungal kullanmaksızın sık aspirasyon, asetik asit ve borik asit kullanarak tedavi etmenin mümkün olduğu sonucuna varıldı.

Anahtar kelimeler: Otomikoz, asetik asit, borik asit.

Otomycosis is not a life-threatening ailment but can be a very frustrating disease for patient and physician. It represents almost exclusively an infestation of the external auditory meatus. If the ear-drum is not intact, e.g. in chronic otitis media, the middle ear may be involved in the disease process. Treatment of otomycosis involves careful cleaning of the external auditory canal under the operating microscope. Although this is sufficient in some cases, most clinicians agree that topical therapy is a useful adjunct to shorten the course of the disease (6) but

Summary: Sixty one patients with an initial diagnosis of otomycosis were treated every other day with aural suction and a choice of two antiseptic preparations (Acetic acid and Boric acid) for three weeks. The patients were assessed every other day until a remission was established. The result of this study showed that it is possible to treat fungal infections of external ear canal using frequent aural toilet and installation of asetic and boric acid without antifungal treatment.

Key words: Otomycosis, acetic acid, boric acid.

no preparation has become widely accepted, and little is known about the safety of most antimycotics (5). Several clinical anecdotes and studies report on the efficacy of a wide range of topical agents for otomycosis (1).

The aim of this study is to find out the efficacy and safety of acetic acid and boric acid as an antiseptic agent in treatment of otomycosis without using antimycotic preparations.

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MATERIAL AND METHOD

Sixty one patients diagnosed otomycosis in another study (2) were recruited for this study. Patients with otomycosis were scheduled randomly as two groups (31 patients in first group and 30 patients in second group). Pre and posttherapeutic audiometry was performed to all patients. Patients in the first group were treated with acetic acid (2%) with hydrocortisone (Drop A) and patients in the second group were treated with boric acid saturated in alcohol (Drop B).

The composition of the drops was as follows:

Drop A *Constituents*
Acetic acid 2%
Hydrocortisone 1%
Sterile water to 100%

Drop B *Constituents*
Boric acid 4%
Absolute alcohol 25%
Sterile water to 100%

Each patients underwent aural suction toilet under an operating microscope on presentation and every other day, thereafter until there were no signs of otitis externa present. The patients were instructed to put four drops in the affected ear(s) two times daily and continue for four weeks. Strict instructions were given to avoid any scratching or manipulation of the ears. At the every visits the patient was asked to grade each of the symptoms itching, pain, fullness of external ear canal, tinnitus, and discharge on a scale of 0-III. Value of the each symptoms are as follows: Itching 1, Pain 1, Fullness of external ear canal 2, Tinnitus 1, Discharge 3 points.

Similarly, a grade of 0-III was given for each of the signs erythema, swelling, debris, and mycelial mat. Value of each signs are as follows: Erythema 1, Swelling 2, Debris 3, Mycelial mat 3 points.

This gave figures which were combined to give a score for the severity of the otitis externa. Normal (0): 0 , Mild (I): 1-5 , Moderate (II): 6-12, Severe (III): 13-17.

All patients were asked for their comments on the medication, and in particular if it were uncomfortable due to stinging.

RESULTS

All patients were cured within 3 weeks of starting treatment. Four of the patients in group A and 22 of the patients in group B complained of the drops stung but any patient did not refuse the treatment. None returned with recurrence within 6 months.

Table I shows the number of patients who had been cured in each group at their weekly visit.

Table II shows the severity of otitis externa in our patients at presentation.

Usually discharge, tinnitus and pain were improved respectively at the beginning of treatment in both groups. Sensation of fullness and itching were improved later. We observed decreasing the mycelial mat and swelling first and, debris and erythema later in every other day control of patients. The patients with low scores were treated usually in one week, and the patients with high scores were treated in two or three weeks.

We established that pre and posttherapeutic audiometries were normal in all patients.

DISCUSSION

Successful treatment of otomycosis depends

Table I. No. of patients cured each week

Treatment Group	No. of Patients	Week 1		Week 2		Week 3		Week 4	
		No.	(%)	No.	(%)	No.	(%)	No.	(%)
A	31	18	(29.5)	10	(16.4)	3	(4.9)	-	-
B	30	13	(21.3)	15	(24.6)	2	(3.2)	-	-
Total	61	31	(50.8)	25	(41.0)	5	(8.2)	-	-

Table II. Scale of patients at presentation

Scale	No. of patients	Average of Score	Range
Normal (0)	0	-	-
Mild (I)	22	3.7	1-5
Moderate (II)	30	9.6	6-12
Severe (III)	9	14.6	13-17
Total	61		

on the physician's diligence in properly cleaning the affected ear canal. We believe that this is best done under magnification (With the operating microscope). Often, removing the fungal mat results in a bleeding red epithelium that is exquisitely tender. The patient must understand that several visits for vigorous and thorough cleaning may be necessary at two or three day intervals, in

addition to topical therapy and strict precautions to prevent water from entering the ear (5).

Than et al in Burma showed that topical 5-FC applied once a week to the external ear canal had a 100% cure rate. Nystatin ointment was second best. Than suggest that boric acid powder is a good alternative in parts of the

world where other agents are not available or too costly (7). Erkan et al found that topical application of acetic acid (2 %) + hydrocortisone combinations twice a day for three weeks were very effective (3).

Marsh and Tom assessed the ototoxicity of acetic acid (VoSol) in guinea pigs. Evoked brainstem responses (BSR) were obtained prior to and 1,2,4, and 6 hours after instillation of the compounds into the middle ear. A 47 dB or greater loss was found after using VoSol which contain propylene glycol (4). We did not establish any hearing loss in our patients after treatment because there was no Propylene glycol in Drop A together with acetic acid. On the other hand all the tympanic membranes were intact in our patients.

The inner portion of the external auditory canal is a unique milieu-exposed to air, susceptible to trauma, yet kept at core body temperature and containing a mix of normal fungal and bacterial flora. The changes that occur in this small space during an infection are complex. Numerous factors such as elaboration of toxins by microorganisms, desquamation of canal skin, and local immunological mechanisms create an environment that is clearly very different from the surface of an agar plate (6).

The main conclusions that can be drawn from this study are that every other day aural toilet and a topical agent is good treatment for otomycosis. Boric acid and acetic acid, combined with frequent aural toilet should be used as a first line medication because of their antiseptic properties. This will avoid the objections of allergic reactions to antimicrobials, and resistance development.

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