Short Communication

Clotrimazole Drops or Miconazole Cream Which is Better for Fungal Ear Infection

Omar Malik Bargas, Qays Jaafar Khalaf[1], Mudhar Hameed Rasheed[2]

Department of Otolaryngology, College of Medicine, University of Anbar, Ramadi, [1]Department of Otolaryngology, College of Medicine, Diyala University, Baqubah, [2]Department of Otolaryngology, Alramadi Teaching Hospital, Al-Ramadi, Iraq

Abstract

Background: Otomycosis is a common condition that the otolaryngologist faces in the clinic; proper treatment and follow-up are necessary for the complete resolution of the disease. **Objectives:** To compare the efficacy of topical Miconazole cream against clotrimazole drops in the treatment of otomycosis. **Materials and Methods:** In this prospective study, 200 patients are included, and they are divided into two groups randomly. In total, 100 patients are treated with clotrimazole drops, and the other 100 are treated with miconazole cream. They are assessed after 4 days and after 14 days of treatment to evaluate the improvement of the three main symptoms aural fullness, otalgia, and itching. **Results:** After assessment of the symptomatic improvement on Day 4 and Day 14, we can see that the improvement is better with cream usage, especially in the 1st few days, while no difference can be seen after finishing the whole course of treatment. **Conclusion:** For early clinical improvement and good patient preference, we advise the usage of creams over drops due to their easy application and acceptable regimen.

Keywords: Clotrimazole, miconazole, otomycosis

Introduction

Otomycosis or fungal ear infection is considered one of the common conditions that affect the external ear. Its high prevalence and incidence were noted in a hot humid climate.[1] Diabetes and other immune deficit causes are also implicated in the development and even resistance to the treatment. Presentation of otomycosis usually as aural fullness, otalgia, itching, hearing loss, discharge, and tinnitus. On examination of the ear via otoscopy, the macerated canal can be seen with white discharge and black-headed dots (wet newspaper). However, the condition is common to otolaryngologists but still presents a challenge in the treatment since most of the cases require 10–14 days[2] or even longer in the immune-compromised patient. The usual regimen of most topical antifungals is about two to three times per day. Close follow-up is required for insurance of complete resolution. For a long time, *Candida albicans* (10%–20%) and *Aspergillus niger* (80%–90%) have been considered the most common organisms belonging to Saccharomycetaceae and Trichocomaceae, respectively.[3,4]

The main step in the management of these conditions is to keep the ear dry with a meticulous aural toilet; the addition of topical antifungals with or without steroids is the next step in the treatment. Various antifungals are available for usage, including clotrimazole, clioquinol, Miconazole, Nystatin, ketoconazole, Tolnaftate, and gentian violate can be used.[5] Gentian violate is extremely ototoxic, so it should be avoided in perforated drums. Clotrimazole is considered one of the most commonly used ones, either in the form of drops or cream.[6] The application of topical antifungals can be in the form of drops or creams, and the last one can be applied either over a wick or via cotton buds or even direct application by a syringe loaded with cream. Persistent infection not responding to topical treatment may require administration of the systemic agent. Mild

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Address for correspondence: Dr. Omar Malik Bargas, Department of Otolaryngology, College of Medicine, University of Anbar, Ramadi, Al Anbar 1234, Iraq.
E-mail: omar.alrawi@uoanbar.edu.iq

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cases may be responding to acidifying agents like Boric acid solution and Burow solution. The aim of the study is to compare the efficacy of topical Miconazole cream against clotrimazole drops in the treatment of otomycosis.

Materials and Methods

In our single-blinded cross-sectional study, about 200 patients are included all of them attend the otolaryngology clinic in Alramadi City. All of the patients underwent complete head and neck examinations focusing on otoscopy that was used for diagnosis of the otomycosis. Any patient with systemic disease that may predispose or aggravate the condition. Otoscopes and out-clinic suction devices are used in the examination of the patients and for documentation video otoscopes are sometimes used. Aural fullness, itching, and otalgia are the main parameters that are taken into consideration to assess the degree of improvement. All of the patients are advised about water precautions and receive Ibuprofen as analgesia. Patients are divided into two groups, Group A includes 100 patients treated with clotrimazole 1% drops (Canesten®), and Group B includes 100 patients treated with miconazole cream in the form of (Daktacort®). After meticulous suction of the fungal debris in all patients, Group A was given clotrimazole drops, three drops TID for 14 days, and for Group B 0.5 mL of Miconazole cream was applied via 3-cc syringe in the external auditory canal and then after 4 days, continue mopping of the canal with cotton buds containing the cream twice per day. All patients are advised to be seen after 4 days and after 14 days for assessment of the degree of improvement of the three parameters by choosing either persist, improved (still have some complaint), or resolved.

Ethical approval

The study was conducted in accordance with the ethical principles that have their origin in the Declaration of Helsinki. It was carried out with patients' verbal and analytical approval before a sample was taken. The study protocol and the subject information, and the consent form were reviewed and approved by a local ethics committee according to document number 109 (including the number and the date on April 15, 2022) to get this approval.

Results

We took 200 patients between 20 and 50 years 125 are males and 75 are females. On the first visit, the symptoms are assessed in each patient before starting the treatment, and the incidence of the symptoms in all patients is shown in Table 1.

After 4 days of treatment, the patients are reassessed, and the degree of improvement is classified as persisting, improved, or resolved and clarified, as shown in Table 2.

After 14 days from the starting of the treatment, the patients were reassessed, and the results are shown in Table 3.

Discussion

Otomycosis or fungal otitis externa is a common problem that may present to the ENT clinic and require treatment, and although it is a benign common condition still may require careful treatment and close follow-up due to the risk of recurrence (about 8.89%)[7] and persistence if not treated adequately. A wide variety of antifungals are present in the market most of them are considered effective in the treatment of the infection if properly used. In our study, we chose two common agents available in drug stores in the form of clotrimazole drops or miconazole with hydrocortisone cream. Asking the patients about the degree of improvement after two visits are documented and discussed. After searching for the previous studies comparing these two modalities of treatment, not much data can be gathered to be used in comparison with our results. One of the previous studies is what Mofatteh *et al.*[8] did when he compare povidone-iodine and clotrimazole recovery and found it's the same. In another study conducted by Romsaithong *et al*.[9] where he found that clotrimazole is better than boric acid in alcohol. From our results, we can see that after 4 days of treatment, the aural fullness is improved significantly in group A (80) patients (75 improved and 5 resolved) compared to group B (50) patients (50 improved and 0 resolved). Our explanation of this improvement is that a single filling of the canal with cream is usually followed by gradual absorption of

Table 1: The incidence of the symptoms at the time of the first visit

Symptoms	Aural fullness	Otalgia	Itching
Incidence	100%	100%	100%

Table 2: The number of patients according to the treatment group and the complaint after 4 days

Group	Symptoms								
	Aural fullness			Otalgia			Itching		
	Persist	Improved	Resolved	Persist	Improved	Resolved	Persist	Improved	Resolved
A	50	50	0	25	70	5	30	40	30
B	20	75	5	3	80	17	5	10	85

Table 3: The number of patients according to the treatment group and the complaint after 14 days

Group	Symptoms								
	Aural fullness			Otalgia			Itching		
	Persist	Improved	Resolved	Persist	Improved	Resolved	Persist	Improved	Resolved
A	0	0	100	0	0	100	0	0	100
B	0	0	100	0	0	100	0	0	100

the medication that allows the patient to feel day-by-day improvement in this feeling. Regarding otalgia, we can see there is a dramatic improvement with the use of cream (97) compared to drops (75), and in the case of itching, also the use of the cream appears to be superior to drops (95 in cream and 70 in drops) the explanation of this difference seems to be due to that the contact time between the creams and the meatal skin is more than that between the drops and the skin. Also, the maneuver of application of the drops may not be well done as this needs the patient to tilt his head and pull the auricle to allow proper installation of the drops, while in the case of cream, there is no need for further usage in the first 4 days and these findings are similar to what Dundar found in his study that single dose of clotrimazole is efficient and cost-effective.[10,11] Also, we can't forget the presence of steroids in the form of hydrocortisone with the miconazole in the cream formula, which appears to help decrease canal edema to facilitate drug absorption. After 14 days of treatment, we can see that there is no difference in symptoms control between usage of the cream and drops, and this is due to the fact that most of the antifungals are effective in the treatment of otomycosis if its well-used and for an appropriate duration.

Conclusion

From this prospective study, we can see that patients who used clotrimazole cream improved faster than those who used drops, especially in the first 4 days, while after 14 days of treatment, the improvement was equal in both groups. Good compliance and doctor application of the cream in the first few days are the secret behind this early improvement which continues with the self-application of the medication via cotton buds.

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Conflicts of interest

There are no conflicts of interest.

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