

Acute otitis externa - A comparative study of topical treatment versus systemic drug therapy

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Abstract

Background: Acute Otitis Externa (AOE) is a painful inflammatory condition of the external ear. Approximately 10% of the population suffers with this condition during their lifetime. These patients usually present with severe pain, itching, ear discharge and sometime reduced hearing. Treatment with local aural packs plays a vital role apart from systemic drug therapy in these cases. Commonly used packs are impregnated with 10% ichthammol glycerin or steroid antibiotic ointment. **Objective:** To emphasize on a new approach by using both 10% ichthammol glycerine and steroid-antibiotic ointment in combination in a single wick for treating pain and swelling in acute otitis externa. To compare the efficacy of pain relief between new combination wick and only Systemic Drug Therapy. **Methodology:** A retrospective study of 120 patients who presented to Out-Patient Department of ENT, JMCH, Jhalawar from June 2018 to November 2018. Patients diagnosed only with AOE were included. Patients with co-existing conditions like CSOM, ASOM, Otomycosis, malignancies and those who lost follow-up were excluded. The patients were divided into two groups i.e. Group I (n=60) treated with a wick impregnated with combination of 10%IG and Steroid Antibiotic ointment and Group II (n=60) treated with systemic drug therapy. **Results:** The total numbers of patients included in this study were 120. Among them 67 were males and 53 were females. Most of the patients were in the age group of 10—30 years of age. Group I had significant reduction in pain on 3rd day and 7th day as compared to Group II. **Conclusion:** The new combination wick with ichthammol glycerine and antibiotic steroid joint. is highly effective in resolving the symptoms and reducing duration of treatment as compared to only systemic drug therapy.

Key Words: Otitis externa, ichthammol glycerine, impregnated wick

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INTRODUCTION

Acute Otitis Externa (AOE) is an extremely painful inflammatory condition of the skin of the external ear. It is characterized by edema (localized/diffuse) and erythema of the affected canal skin. AOE have a prevalence of 0.4 % per year and affects 10% of the population once during

their lifetime ¹. Predisposing factors for AOE include anatomical (stenosis of EAC, exostoses), dermatological (eczema, seborrheic dermatitis), allergic reactions, physiological (humid environment, immunocompromised), traumatic (repeated ear probing, skin maceration) and microbiological (Staphylococcal or pseudomonal infections)². These patients usually presents with severe pain, itching, ear discharge and fewer cases with reduced hearing. The common signs range from erythema and localized swelling to a diffuse canal edema, a positive tragus sign, cellulitis and displacement of pinna. The management includes gentle but thorough aural toilet followed by various types of medical treatments as well as surgical interventions in some cases. Medical management includes topical and systemic drug regimes using antimicrobial and anti-inflammatory agents. There are a number of treatment regimes used by different ENT surgeons depending upon the patient's requirement,

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environmental factors, availability and clinical expertise. The purpose of this study is to emphasize a new approach for treating AOE with maximal efficacy and least side effects on outpatient basis. This study will also be comparing the clinical outcomes of topical treatment with systemic drug therapy.

MATERIAL AND METHODS

This is a retrospective study of 120 patients who presented to Dept. of ENT (OPD Section) at SRG Hospital, Jhalawar, Rajasthan clinically diagnosed as Acute Otitis Externa during the period of June 2018 to November 2018. Patients diagnosed only with AOE were included. Patients with co-existing conditions like CSOM, ASOM, Otomycosis, malignancies and those who lost follow-up were excluded. The patients were divided into two groups i.e. Group I

(n=60) treated with a topical medication wick and Group II (n=60) treated with only systemic drug therapy. In Group I, external auditory canal of the patient is thoroughly cleaned and a sterile cotton wick impregnated with combination of 10% Iccthamol Glycerine solution and antibiotic-steroid cream was applied. In Group II, the canals were cleaned thoroughly and a standard regime of antibiotic (Tab. Amoxycillin +Clavulanic Acid) and anti-inflammatory-analgesic (Tab. Ibuprofen+Tab. Paracetamol) drugs prescribed as per body weight. The patients were reassessed on 3rd and 7th day. The canal was repacked on the 3rd day in all Group I cases, and if the tragal sign was positive on 7th day, then repacking was done. The Standard Wong-Baker Faces Rating Scale was used to assess the pain on the day of presentation, 3rd day, 7th day.

RESULTS

Our study included patients starting from the age of 5 years to 75 years. Majority of the patients were belonging to age less than 30 years (Table 1).

Table 1: Age Wise Distribution

Age Groups (In Years)	Group I (N=60)	Group II (N=60)
<10	7	11
11-19	21	18
20-29	15	16
30-39	9	4
40-49	5	6
50 and Above	3	5

There were 75 males and 45 females in the study (Table 2).

Table 2: Gender Wise Distribution

Gender	Group I (N=60)	Group II (N=60)
Male	41	34
Female	19	26

In our study, 70 patients were diagnosed as Localized otitis externa and 50 patients as Diffuse otitis externa (Table –3). The most common presenting symptom was pain in affected ear along with positive tragus sign in localized otitis externa. Diffuse otitis externa presented with intense itching along with pain and infrequent discharge from the affected ear.

Table 3: Types of AOE

Type	Group I (N=60)	Group II (N=60)
Localized	23	47
Diffuse	37	13

Statistical analysis was done in both groups on day 3rd and 7th after treatment (Table 4-5).

Table 4: Comparison of Treatment outcomes in Group I (VAS Scores)

Assessment Day	Mean	Standard Deviation	Un-paired t test	
			Day -3 vs. Day-7	Day -7 vs. Day-10
3 rd	5.75	1.19	p<0.0001	p<0.0001
7 th	2.69	1.25		

Table 5: Comparison of Treatment outcomes in Group II (VAS Scores)

Assessment Day	Mean	Standard Deviation	Un-paired t test	
			Day -3 vs. Day-7	Day -7 vs. Day-10
3 rd	6.10	0.97	p<0.0001	p<0.0001
7 th	4.99	0.62		

The number of patients with complete resolution of symptoms on 7th day was compared within two groups (Table 6). The Group I have higher percentage of patients i.e. 71.66% with complete resolution of symptoms indicating reduction of treatment time as well as reduced use of systemic drugs indirectly reducing the side effects of drugs.

Table 6: Complete Resolution of Symptoms on 7th Day

Group	No. of Patients	Percentage
I (n=60)	43	71.66%
II (n=60)	32	53.33%

DISCUSSION

Acute Otitis Externa is the most common acute inflammatory condition of the external ear. It is usually seen in hot and humid climates. Aetiopathologically mostly the conditions (infectious and non-infectious), hampering the lipid/acid balance of the ear canal skin leads to AOE. The external auditory canal possesses two self-defense mechanisms i.e. presence of cerumen and outward epithelial migration of canal skin. Cerumen coating inhibits the bacterial and fungal infections because of its acidic nature [3]. Also, it is hydrophobic in nature thus preventing water to enter the canal skin. The amount of cerumen plays a vital role as too much cerumen can lead to obstruction of canal, impaction of debris and infection. The outward oblique growth of the epidermis of the canal skin cleanses the canal on its own [4]. Repeated ear cleaning attempts, swimming, anatomical distortions leads to disturbance of these defense mechanisms thus creating a favorable condition for acute otitis externa. The patient history and thorough ENT examination is considered sufficient for diagnosing acute otitis externa. Additional investigations might be required in patients with history of chronic systemic illnesses like diabetes, autoimmune disorders and chronic dermatological illness. The most common pathogens causing the AOE are *Staphylococcus aureus*, *Pseudomonas aeruginosa* and *Aspergillus fungi* [1]. The treatment of acute otitis externa is mainly aimed at resolution of the severe pain and edema of the affected ear canal as well as clearance of these pathogenic organisms. This can be achieved by topical as well as systemic treatments. Topical treatment methods include ear drops and wicks. The eardrops are not able to penetrate the edematous canal skin but this can be very well achieved by insertion of a wick [5]. Various studies shows use of different types of medications like 10% Ichthamol glycerine, antibiotics like mupirocin, antibiotic-steroid combinations, magnesium sulphate etc. for impregnating the wick [6,7]. The systemic drugs are either used alone or in conjunction with the topical treatment for managing symptoms like pain and severe edema or in complicated otitis externa. But, the use of systemic drugs also disposes

the patient to their side effects as well as impairs the cost-effectiveness of the treatment. The Ichthamol Glycerine (10%) is a multi-action agent that gives promising results while treating otitis externa. This is hygroscopic in nature, thus reduces canal edema and pain efficiently. Glycerine also reduces itching by its emollient action. The IG also possesses fungicidal and bactericidal properties that could be further enhanced by adding an antibiotic steroid ointment while impregnating the wick [8]. The studies published by Adhikari *et al.* [6] and Bhatt *et al.* [9] showed significant decrease in pain and number of visits by using steroid antibiotic wick compared to ichthammol glycerine while Masood *et al.* [10] found no differences. Our study shows significant results by combining the two agents in a single wick. We achieved complete resolution of symptoms in majority of the patients i.e. 71.66% within 7 days. The duration of treatment was reduced and risk of side effects of systemic drugs was eliminated in these patients. We did not have any cases showing hypersensitivity to ichthammol glycerine.

CONCLUSION

We conclude that topical treatment with insertion of wick is better than using only systemic drugs for treating acute otitis externa. Impregnating the sterile wick with a combination of 10% Ichthammol Glycerine and Antibiotic-Steroid Ointment gives promising results in terms of rapid resolution of symptoms.

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