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Document: Study Protocol & Statistical Analysis Plan

Title: Efficacy Of Pyodine Soaked Gelfoam Vs Single Topical Application Of Clotrimazole In Treatment Of Otomycosis: A Randomized Controlled Clinical Trial

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Efficacy Of Pyodine Soaked Gelfoam Vs Single Topical Application Of Clotrimazole In Treatment Of Otomycosis: A Randomized Controlled Clinical Trial

Otomycosis is the fungal infection of external auditory canal and is commonly encountered disease in ENT clinics constituting almost 30% of ear infections.[1] There are multiple contributing factors for this condition like humid climate, poor hygiene, self cleaning with multiple objects, use of broad spectrum antibiotics, steroids, immunocompromised states and metastatic disease. Mostly patients present with itching, aural fullness. Clinical examination show Fungal Hyphae on otoscopy. Candida albicans and Aspergillus fumigatus are most commonly involved in otomycosis.[2] Treatment of otomycosis include local cleaning, discontinuation of topical antibiotics, antifungal agents and improvement of health and hygiene of the patients. Multiple treatment options are available for treatment of otomycosis but recurrence rate of the disease is high.

A study was conducted by JweryAK and efficacy of clotrimazole, acetic acid and povidine iodine was compared in patients with otomycosis and it was concluded that 97.5% patients of Clotrimazole group, 72.5% of acetic acid group and 52.5% of povidine iodine group showed response to the treatment option with p value of 0.00001.[3] Haq et al in a study suggested that use of clotrimazole in management of otomycosis not only relieves its symptoms but also reduces the chances of recurrent disease.[4] As repeated daily application is difficult for the patients and results in reduced compliance so single dose application was studied.In a study conducted by Chavan et al single dose topical application of clotrimazole was done and 91.0% patients recovered at the end of 1st month with 9.0% having persistent disease.[5]Another study conducted by Swain et al compared topical use of clotrimazole and povidine iodine solution for recurrent otomycosis. Results showed 40.90% symptoms resolution in clotrimazole group as compared to 81.81% resolution in pyodine group with p value 0.0045.[6] Mofatteh, et al. conducted a study on 204 patients with otomycosis and compared the recovery rates between topical betadine (povidoneiodine) and clotrimazole. Authors reported the efficacy of betadine and clotrimazole was the same for the treatment of otomycosis.[7]

Due to reduced compliance of the patients and ineffective technique of using topical antifungal otomycosis has high rate of treatment failure and recurrence. Topical clotrimazole drops and povidine iodine solution have been compared for their efficacy in the past but single topical application has not been compared until now. If results are in favor of this treatment option it is convenient and cost effective. It does not requires patient compliance and numerous visits for local clinic. So it will be highly beneficial for the patient

OBJECTIVE:

To compare the efficacy of pyodine soaked gelfoam with single application of clotrimazole in otomycosis

HYPOTHESIS

Pyodine soaked gelfoam is more effective treatment option for otomycosis as compared to clotrimazole topical application

OPERATIONAL DEFINITIONS

Otomycosis

Fungal infection of external ear Canal confirmed on the basis of history and otoscopic observation of Hyphae

Treatment response

- **Complete Recovery**

  EAC clean with no Fungal Hyphae and return of EAC to its natural state with relief of symptoms no tragal tenderness, erythema of EAC

- **Good Response:**

  Dry EAC and decrease in discharge and spores

- **Partial Response:**

  Slight discharge/ spores but not completely dry EAC

- **No Response:**

  Hyper secretions in EAC

MATERIALS & METHODS:

Study design:

Randomized control trial

Study duration:

Minimum of 6 months from approval of synopsis

Settings:

Department of ENT, Benazir Bhutto Hospital Rawalpindi

Sampling technique:

Non probability, consecutive sampling

Sample Size:
Calculated via open epi Version 3
Two sided significance level 1-α =95
Power of test (%) 1 − β =80
Ratio of sample size =1
Percentage of clotrimazole with outcome: 41%
Percent of pyodine soaked solution with outcome=81.81%
Odds Ratio=6.5
Risk/prevalence ratio= 2
Risk or prevalence difference=41
Sample size clotrimazole group=26
Sample size pyodine group=26

SAMPLE SELECTION

Inclusion Criteria:

- Clinically diagnosed otomycosis with intact tympanic membrane

Exclusion Criteria:

- Patients with Active Mucosal COM
- Other external auditory Canal abnormalities
- Patient having hearing aid

DATA COLLECTION PROCEDURE:
After approval from Research and Ethical Committee, Rawalpindi Medical University, Study will be carried out in the ENT department Benazir Bhutto Hospital Rawalpindi. Written informed consent will be taken from the patients for inclusion in the study. The sample size calculated is 52 patients. Individuals with a clinical otomycosis diagnosis will recruited for the study. Individuals with active CSOM, external auditory canal abnormalities, and hearing aids will be excluded from the study. Patients will be enrolled in two treatment groups. Complete history will be taken from the patients and the ear canal to be assessed by otoscopy. The aural toilet of all patients will be done via suctioning of the ear canal. In Group A patient's ear canal will be filled with 1% clotrimazole ointment by using an Intravenous catheter and syringe In Group B pyodine solution-soaked gel foam will be placed in the external auditory canal. Followup of patients was done on the 7th and 14th post-treatment days otoscopy will be performed and post-treatment symptom resolution and ear canal condition will be assessed.

DATA ANALYSIS PROCEDURE:
The collected data will be analyzed by SPSS version 23. Descriptive studies will be used to analyze qualitative and quantitative variables.Qualitative variables will be represented by

frequency and percentage.For quantitative variables Mean+ Standard Deviation will be calculated. Comparison between outcomes of two groups will be done by using two sample t test or paired t test.A p value <0.05 will be taken as significant

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