Comparison between Corticosteroids and Antifungal Drugs in Treatment of Allergic Fungal Rhinosinusitis.

META-ANALYSIS FOR PARTIAL FULFILMENT OF MASTER DEGREE IN OTORHINOLARYNGOLOGY

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Abstarct:

Purpose: The purpose of the study is To compare between steroids' efficacy and antifungal drugs' efficacy in AFRS (Allergic fungal rhinosinusitis) treatment in a Meta-analysis form. As well to find the best treatment protocol in AFRS cases. **Patients and Methods:** this was a meta-anlysis study comparing diffrent studies regarding efficacy of antifungal drugs and corticostroids in the treatment of AFRS . **Results**: In this meta-analysis, 3 articles were included with a total number of participants (144) patients and all have been published between 2015 and 2006.The research studies were documented no statistical significant difference between antifungals and steroids in AFRS treatment with Cochran Q = 1.554, df = 1, p-value = 0.213, I-squared = 35.648. (FEM: odds ratio = 0.50, 95% CI (confidence limits) = 0.21 to 1.17, p-value = 0.11) according to Kupferberg grade I-III. In addition, with odds ratio = 0.37, 95% CI = 0.10 to 1.45, p-value = 0.15 according to recurrence. **Conclusion:** We found in our meta-analysis that there is no difference between using corticosteroids and antifungals in AFRS treatment.

Key words: (allergic fungal rhinosinusitis treatment, steroids vs antifungals in allergic fungal rhinosinusitis treatment)

Introduction:

Introduction

❖ INTRODUCTION

Allergic fungal rhinosinusitis (AFRS) is a new and not completely understood disease with certain radiological, clinical, and histopathologic findings. Misdiagnosis of AFRS is so common. Good understanding of this issue will lead to right diagnosis and treatment. **(Glass et al., 2011).**

About 5% to 10% of chronic rhinosinusitis (CRS) patients who require surgical intervention have AFRS. AFRS is well recognized nowadays because of improvement of culture techniques. AFRS is commonly found in a younger age group; mean ages of large series vary from 23 to 42.4 years of age. **(Houser et al., 2000).**

There is a huge advancement in how to treat AFRS . Whenever AFRS is diagnosed, patients are involved into a long-term treatment protocol with follow-up. Surgical treatment and a good medical regimen after surgery are both important to control the disease. Unlike the classic way we have used to treat CRS, the main line of treatment of AFRS is the surgical way. In addition to decreasing exposure burden, endoscopic surgical debridement of eosinophilic mucin from the sinuses also improves sinus aeration and enhances outflow. Additionally marsupialization of sinus cavities allows improved access to debride after surgery and mechanical irrigation with saline solution and/or topical medication access for postoperative debridement and mechanical and/or topical medications. **(Marple BF.., 2006)**

Additionally postoperative corticosteroids (OCS) and /or antifungal drugs in AFRS further reduces overall disease activity, including decreasing both symptoms and surgical recurrence rates. **(Schubert, et al 2009)**

Several studies studied treatment protocols of AFRS and results are variable regarding line of therapy, dose, regimen and how efficient the treatment is.**(Rains., et al 2003, Landsberg, et al 2007, Seiberling, et al 2009 and Woodworth., et al 2004)**

From what mentioned above, AFRS is a serious disease and adversely affects patients' lifestyle. There is no single accepted protocol or guidelines regarding treatment of AFRS.

Aim of the Work

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To compare between steroids' efficacy and antifungal drugs' efficacy in AFRS treatment .in a Meta-analysis form. As well to find the best treatment protocol in AFRS cases.

Review of Literature

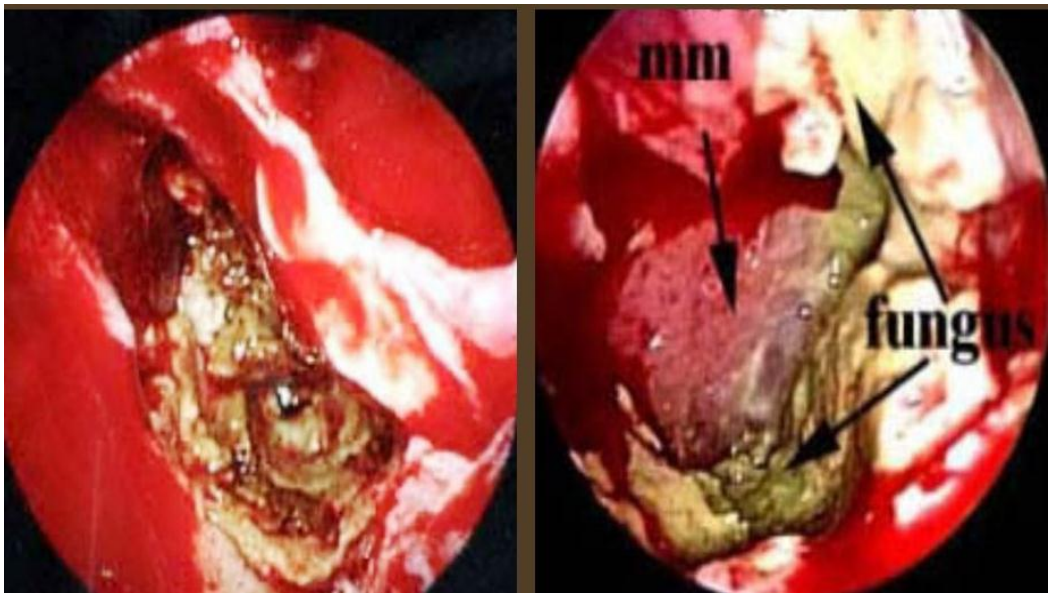
Chapter (I): 

Allergic rhinosinusitis

❖ ***Allergic rhinosinusitis***

Allergic rhinitis(AR) is a nasal symptomatic disorder induced by an immunoglobulin E (IgE) -mediated inflammatory process of the nasal lining membranes after their exposure to allergin **(Pawankar et al.., 2012)** which was defined in 1929 **(Hansel et al.., 1929)**:With sneezing, discharge of mucous and obstruction of the nose as cardinal symptoms.

- **(Figure 1)**



- **Figure (1):** Allergic fungal sinusitis

AR is a huge problem of health that causes disability and major illness a worldwide. Patients from different age groups, all ethnic groups and all countries suffer from AR. Sleep, social life, school and work all are affected. AR has an impact on economy, which is usually underestimated, as this disease does not induce elevation in direct costs. However, the indirect costs are substantial. **(Pawankar et al..., 2012)**

Rhinitis by definition is an inflammation of the nasal lining membranes characterized by symptoms of the nose including rhinorrhea (anterior or posterior), nasal blockage, sneezing and/or itchy nose. The occurrence of these symptoms is during two or more consecutive days for 1h or more on the most days. **(International Rhinitis Management Working Group.., 1994)**

AR is the commonest form of noninfectious rhinitis and it has an association with an IgE-mediated response to allergens. It is associated with symptoms in the eyes.

Since the mucosa of the nose is continuous with the mucosa of the paranasal sinuses, congestion in the ostia results in sinusitis, which does not exist without rhinitis. The term 'rhinosinusitis' should replace 'sinusitis' **(Fokkens et al., 2005.)**

AR symptoms include nasal obstruction, rhinorrhea **(Ciprandi et al..., 2005),** sneezing and nasal itching which are spontaneously reversed or with treatment. **(Farhoudi et al..., 2005).**

Postnasal discharge occurs mainly either with plenty of anterior rhinorrhoea in AR **(Doyle et al.., 1995),** or without any anterior rhinorrhoea in CRS. **(Kuntson & Slavin.., 1995)**

Preschool children may just have nasal obstruction. However, when obstruction of the nose is the only symptom that means it has a rare association with allergy. Patients have non-allergic rhinitis may have the same symptoms **(molgaard et al..., 2007.)**

➢ Classical signs and symptoms:

AR characterized by subjective symptoms, which are difficult to quantify due to their dependence on the patient's perception.

➢ Symptoms related to school, social life, school and work:

Now it is recognized that AR comprises more than classical symptoms of rhinorrhea, sneezing and nasal obstruction. It has an association with impairments in how well patients live. In adults, impairment in QOL is seen **(Roberts et al..., 2003)**.

Patients also suffer from emotional problems and sleep disorders; they also suffer from social functioning and activities impairment (**Juniper et al.., 1999).**

Poorly controlled AR symptoms may contribute to disturbance in sleep or sleep loss **(Gosepath et al.., 1999).** However, H_1-antihistamines that have sedative properties do increase sedation in AR patients **(Casale et al..., 2003).**

- **Risk factors:**

  - AR is a multifactorial disease caused by gene–environment interactions.
  - Inhalation of outdoor and indoor allergens causes AR.
  - Major outdoor allergens including molds and pollens.
  - Major indoor allergens including molds, animal dander, mites and insects.
  - Food allergens rarely cause symptoms in the nose.
  - Occupational agents could induce rhinitis by non-allergic and allergic mechanisms.

The role of outdoor and indoor pollutants exist in the air is important, but we need more data to assess their effect.

Socioeconomic differences are reported in allergic diseases, but we require more data before producing specific recommendations . Rhinitis risk factors may intervene of life at all ages.

- **<u>Genetic factors:</u>**