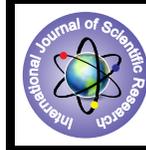


A Comparative Study Between Medical and Surgical Treatment of Chronic Rhino Sinusitis (A Study of 100 Cases)



Medical Science

KEYWORDS :

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Introduction

Chronic rhino sinusitis (CRS) is widely prevalent condition globally as well as in India. The chronicity of the condition and its multifactorial origin makes the detection of the underlying mechanism of the disease difficult to detect and renders the management challenging.

The term 'rhino sinusitis' is fast replacing 'sinusitis', because sinusitis is often preceded by rhinitis and rarely occurs without concurrent nasal inflammation. Rhino sinusitis refers to a group of diseases, mainly the inflammation and infection, which affect the mucosa of nose and Para nasal sinuses (PNS). The prevalence and incidence of the condition is showing an increasing trend worldwide.^{1,2,3}

AIMS AND OBJECTIVES

1. Comparison of symptomatic relief after surgical and medical treatment of chronic rhino sinusitis
2. Comparison of recurrence rate after surgical and medical treatment.

MANAGEMENT

DIAGNOSIS

Rhinosinusitis is defined as:

- Inflammation of the nose and the paranasal sinuses characterised by two or more symptoms, one of which should be either nasal blockage/obstruction/congestion or nasal discharge (anterior/posterior nasal drip)³⁹
- ± Facial pain/pressure,
- ± Reduction or loss of smell; and either
- endoscopic signs of:
 - Polyps and/or;
 - Mucopurulent discharge primarily from middle meatus and/or; oedema/mucosal obstruction primarily in middle meatus, and/or
- CT changes:
 - +/- Mucosal changes within the osteomeatal complex and/or sinuses.

RHINOLOGICAL EXAMINATION ANTERIOR RHINOSCOPY

NASAL ENDOSCOPY:

It is useful to diagnosed and assess the early disease process. It is also detects and evaluates anatomical abnormalities. The specimen for culture and sensitivity can be collected either by swab from middle meatus under endoscopic control or by antral lavage.⁴⁰

The Lund and Mackay staging system: Endoscopic score.

RHINOLOGICAL EXAMINATION

Plain radiography-Occipitomeatal (water's) view:

Computed tomography

LUND -MACKAY RHINOSINUSITIS STAGING SYSTEM

THERAPEUTIC MANAGEMENT:

MEDICAL TREATMENT:

Role of antibiotics

The need for broad spectrum antibiotic coverage for an extended period of time (3- 4 weeks that may extended up to 8- 10 weeks in refractory cases) has been recommended by AAO-HNS task force on rhinosinusitis.⁴⁵ In chronic rhinosinusitis the therapy is more effective if targeted against both aerobic, anaerobic and B-lactamase producing bacilli. These includes a combination of penicillin with B-lactamase inhibitor e.g., Amoxicillin+clavulanic acid, combination of Metronidazole and macrolide, or the newer quinolones e.g., Levofloxacin, Gatifloxacin, Mafloxacin. If aerobic gram negative organism such as *Pseudomonas aeruginosa* is involved, an aminoglycoside (Amikacin, Gentamicin), a fourth generation cephalosporin (Cefepime, Ceftazidime) or a fluoroquinolone is added.^{46,47}

Role of long-term macrolide therapy

Apart from its antibiotic effect the macrolides have some immunomodulatory properties also. Recent studies have shown that long-term, low dose macrolide therapy is effective for treating CRS.⁴⁸ The macrolide treatment is considered in patients with normal serum Ig-E, non-allergies, negative culture, steroids not effective, symptoms dominated by postnasal drip/facial pain and headache.⁴⁹

Role of antifungal therapy

Persistent refractory CRS is distinguishing feature of patients with allergic fungal sinusitis [AFS] and non-allergic eosinophilia fungal sinusitis [NAFES]. Oral anti-fungal are indicated in patient with refractory chronic fungal sinusitis. Anti-fungal are thought to decrease antigenic load thereby reducing the trigger to chronic inflammation.

ROLE OF STEROIDS

Steroid therapy has a role in many facets of sinonasal disease, including allergic rhinitis, nasal polyposis, and the reduction of postoperative reactive oedema.^{52,53}

Topical corticosteroids

It constitutes first line of treatment in almost all patients of CRS with or without nasal polyposis because they provide many of the benefits of corticosteroids without systemic side-effects.^{54,55} Clinical trials have confirmed that intranasal corticosteroids are superior to placebo in reducing polyp size, reduce recurrence rate, improving the nasal congestion and rhinorrhoea, and increase peak nasal airflow in patients with CRS and nasal polyposis.⁵⁶

Systemic steroids

Oral prednisolone decrease mucosal inflammation, restore sense of smell and reduce size of nasal polyps in chronic sinusitis with or without polyps.⁵⁸ Usually systemic steroids are used as short term rescue medication for uncontrolled symptoms with topical steroids. .

Anti-leukotriene:

It is cysteinyl leukotriene 1 receptor antagonist. It has demonstrated significant reduction in absolute eosinophil cell count in peripheral blood and septum in patients with allergic rhinitis and asthma in many studies compare to the placebo.^{59,60} Montelukast and Zafirlukast have been suggested to have efficacy in chronic hyperplastic rhino sinusitis with nasal polyposis in open-label trials.⁶¹

Role of antihistamines and decongestants

Antihistaminic therapy should be considered in patients with sinusitis whose symptoms support a significant allergic component. There are no studies that support their use in an infectious setting, where it may worsen the congestion by drying the nasal mucosa.

The new generation antihistamines are clinically efficacious for alleviating allergic symptoms such as rhinorrhoea, pruritus and sneezing. Since first or second generation oral antihistamines are not very effective in relieving nasal blockage, oral decongestion agent [e.g. Pseudoephedrine, Phenylpropanolamine] or a topical nasal corticosteroid may need to added.^{62, 63, 64}

Topical intranasal antihistamines- Azelastine is the first and only agent in this novel category and has been approved by FDA. It required 1 to 2 sprays per nostril twice daily for adults and once sprays per nostrils twice daily for paediatric patient.⁶⁵

Role of nasal saline irrigation and saline nasal therapy

Nasal lavage or douche with isotonic sodium chloride solution helps in washing away the inflammatory in infective nasal secretion and removal of debris and dead tissue and also improves mucociliary function. It also improves the clinical effectiveness of intra nasal steroids and hence reduces the potential side effects associated with excessive steroid uses.^{66, 67, 68, 69, & 70}

Role of environmental factor

There is a higher prevalence of allergy among patients who have CRS and allergic episodes seem to aggravate the disease. So measures taken by individual to reduce exposure to allergen are very likely to be beneficial in the treatment.⁷³

MAXIMAL MEDICAL THERAPY

In 1996, the rhino sinusitis task force of the American Academic of Otorhinolaryngology-Head & Neck surgery recommended that CRS should be treated with maximal medical therapy and surgery should be performed only after failure of such therapy.

Maximal medical therapy is usually a combination of oral antibiotics, oral steroids, topical nasal steroids, topical decongestants and saline nasal douching / spray given for a period of 4 to 6 weeks and patients is evaluated after that.^{10, 11}

SURGICAL TREATMENT:

Endoscopic sinus surgery aims to reduce the disease in patients with rhino sinusitis by removal of pathological tissue from osteomeatal complex area, which restoration of mucociliary function of sinus mucosa, ventilation of sinuses that helps in reduction of number of mucosal glands and goblet cell population leading to decreased nasal secretions, clearing the pathway for better delivery and distribution of topical nasal medication in the nose and sinus mucosa, reduction of diseased sinus mucosa surface area by removal of polypoidal disease, improvement of

olfaction by opening superior meatus and sphenoidal recess, relief the nasal obstruction in cases with gross surgical anatomic variations such as concha bullosa or big spur.

MATERIALS AND METHODS

The prospective randomised study was conducted at the department of Otorhinolaryngology, Smt. SCL General Hospital, Ahmedabad for a period between May 2012 & Nov 2014. Total 100 patients were enrolled. Out of which 50 patients treated with medical treatment were compared with 50 patients who were treated with the surgical treatment. In the comparison groups the selection of the patients was done on the following basis :

- Detailed history will be taken followed by complete ENT examination.
- After clinical diagnosis of CRS, patients were investigated by doing CT Scan of NOSE AND PNS / X-ray PNS & Diagnostic Nasal Endoscopy.
- In first group 50 patients given maximal medical therapy up to 4-6 weeks which include oral antibiotics, oral antihistamines+decongestant, oral steroids, topical intranasal steroid spray and nasal saline douching/spray. After that topical steroid spray, oral antibiotics and nasal saline douching/spray will be continued up to 3 months. Oral anti-leukotriene and avoidance of allergens are advised in patients with history of allergy.
- In second group 50 patients was surgically treated by FESS with or without septoplasty after giving 15 days of oral antibiotics, oral steroids, intranasal steroids spray, oral antihistamines and decongestant .Similar treatment was given postoperatively up to 15 days.
- After that all the cases were followed at 1 month and at 3 month.
- Outcome will be measured in terms of the number of cases being improved in symptoms and number of cases having a recurrence of disease/symptoms following the procedure.
- Subjective assessment was done as per The Lund and Mackay staging system: symptom score (Visual analogue method).

0 symptoms not present

0-10 degree of symptom severity

10 indicating greatest severity

INCLUSION CRITERIA

- 12 weeks or greater of persistent symptoms and signs.
- Meet 2 of 5 major criteria
 - o Headache
 - o Facial pain/pressure
 - o Nasal congestion/ obstruction
 - o Nasal discharge
 - o Anosmia/Hyposmia.
- Persistent changes in CT SCAN/X-RAY for weeks after initial 15 days medical therapy.

EXCLUSION CRITERIA

- Pregnant or lactation
- Significant psychological problem
- Inability to comply with study protocol
- Children under 16 years of age
- Use of systemic corticosteroids
- Systemic diseases preventing participation in the study
- Medical or surgical treatment influencing the study.

DATA ANALYSIS AND DISCUSSION

We conducted a randomized prospective study at the department of ENT – Head & Neck surgery at Smt. SCL hospital,

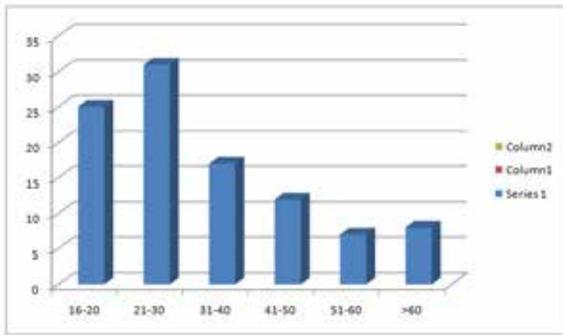
Ahmedabad. Total 100 patients were enrolled. The data analysis is shown below.

GROUP	TREATMENT	NO OF CASES
GROUP A	MAXIMAL MEDICAL THERAPY	50
GROUP B	SURGICAL(FESS +/-SEPTOPLASTY)	50

AGE DISTRIBUTION

Age (Year)	No of cases
16-20	25
21-30	31
31-40	17
41-50	12
51-60	7
>60	8
TOTAL	100

In the present study maximum study population were in age group 21-30 years constituted 31% of population, followed by age group 16-20 years constituted 25% of population. In Ishwar Singh et al study, 40% of CRS patients were in 18-25 age group, 26.66% in 26-35 group, 6.66% in 36-45 group, 23.33% in 46-55 group and 3.33% in 55-65 age group. Two-third of patients were found in below 35 age group.⁹

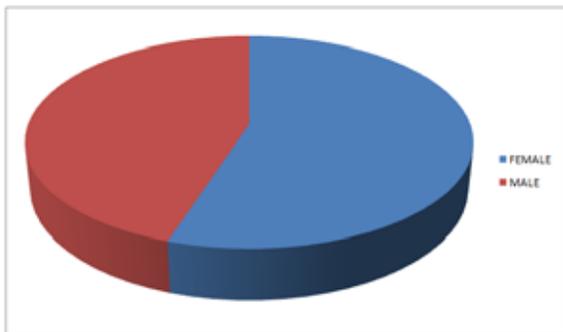


PRESENTATION OF AGE DISTRIBUTION

GENDER DISTRIBUTION

Gender	No of cases in surgical treatment	No of cases in medical treatment	Total
Male	26	19	45
Female	24	31	55

In the present study out of the 100 patients 55 were females (55%) and 45 were males (45%). In present study male:female ratio was 1:1.22. According to Ishwar Singh et al male:female ratio was 1:1.14.⁹

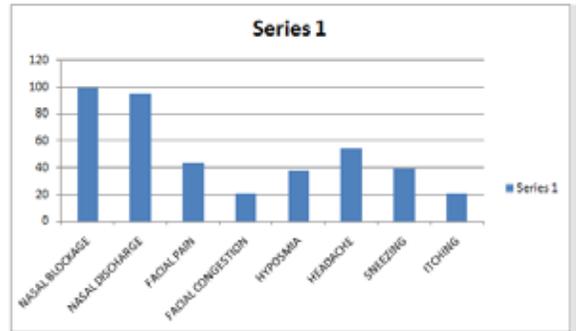


PIE CHART SHOWING GENDER DISTRIBUTION

SYMPTOMATOLOGY:

Complains	No of cases
Nasal blockage	100
Nasal discharge	96
Facial pain	44
Facial congestion	21
Hyposmia/anosmia	38
Headache	54
Sneezing	40
Itching	24

In the present study nasal obstruction was the most common symptom that affected 100% of patients followed by nasal discharge 96%, headache 54%, facial pain 44%, sneezing 40%, Hyposmia/anosmia 38%, itching 40% and facial congestion. In Ishwar Singh et al study headache was most common complain, found in 80% of patients followed by nasal blockage 76.66%, hyposmia/anosmia 46.66%, nasal discharge 43.33%, facial pain 40%, sneezing 40%.⁹



GRAPHICAL DISTRIBUTION OF NASAL SYMPTOMS

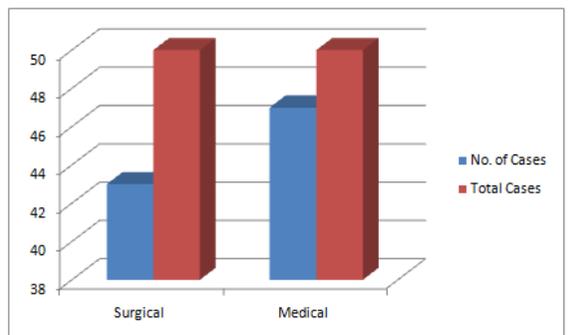
COMPARISON OF RECCURANCE/RELAPS RATE BETWEEN MEDICAL AND SURGICAL TREATMENT

Treatment	Total cases	No recurrence of	Percentage
Surgical	50	8	16%
Medical	50	5	10%

In the present study recurrence/relaps rate more in surgical method (16%) compare to medical treatment (10%). In the present study improvement of symptoms more in medical treatment (94%) than surgical treatment (86%). Subramanian et al found that 69% of patients were achieved symptomatic improvement by maximal medical therapy.⁵ Devyani Lal et al concluded that maximal medical therapy successful in 51%, failed in 31% and surgery was avoided in 69% patients.⁶ According to Ishwar Singh et al 83.3% of patients were achieved symptomatic improvement after sinus surgery.⁹

GRAPHICAL REPRESENTATION OF RECURRENCE RATE RATE OF SYMPTOM IMPROVEMENT

Treatment	Total cases	No of cases	Percentage%
Surgical	50	43	86
Medical	50	47	94



CONCLUSION

- Maximal medical therapy found superior to functional endoscopic sinus surgery in CRS. More symptomatic improvement achieved by maximal medical therapy than surgery in CRS.
- CRS should be initially targeted with maximal medical therapy and surgery should be considered only if maximal medical therapy fails.
- Pre-operative and post-operative maximal medical therapy decrease recurrence rate after sinus surgery and improve outcomes of sinus surgery.
- Though immunotherapy was not included in this study it may give better result in CRS especially in those cases associated with allergic component.

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