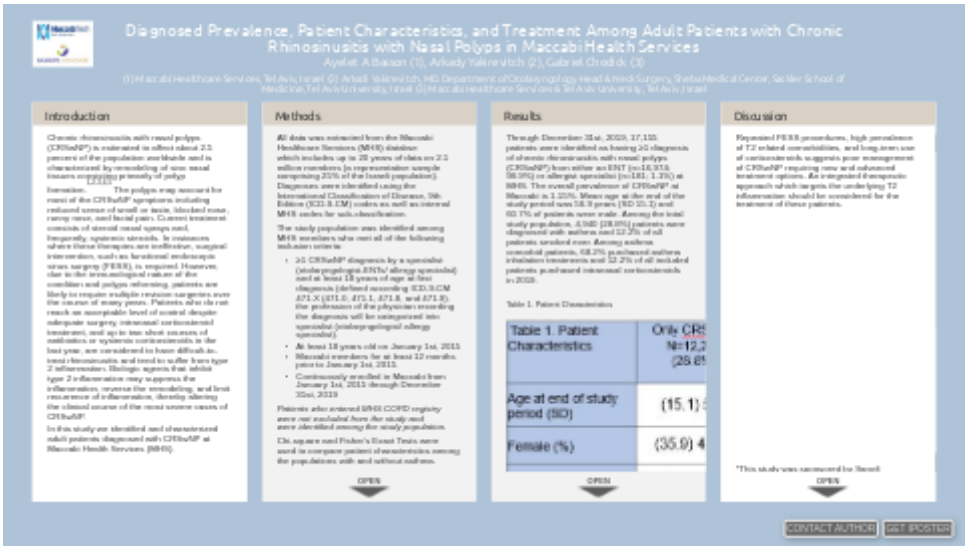
Diagnosed Prevalence, Patient Characteristics, and Treatment Among Adult Patients with Chronic Rhinosinusitis with Nasal Polyps in Maccabi Health Services



Ayelet A Basson (1), Arkady Yakirevitch (2), Gabriel Chodick (3)

(1) Maccabi Healthcare Services, Tel Aviv, Israel (2) Arkadi Yakirevitch, MD. Department of Otolaryngology-Head & Neck Surgery, Sheba Medical Center, Sackler School of Medicine, Tel Aviv University, Israel (3) Maccabi Healthcare Services & Tel Aviv University, Tel Aviv, Israel

PRESENTED AT:

INTRODUCTION

Chronic rhinosinusitis with nasal polyps (CRSwNP) is estimated to affect about 2.5 percent of the population worldwide and is characterized by remodeling of sino nasal tissues consisting primarily of polyp

formation.[1,2,3,4,5] The polyps may account for most of the CRSwNP symptoms including reduced sense of smell or taste, blocked nose, runny nose, and facial pain. Current treatment consists of steroid nasal sprays and, frequently, systemic steroids. In instances where these therapies are ineffective, surgical intervention, such as functional endoscopic sinus surgery (FESS), is required. However, due to the immunological nature of the condition and polyps reforming, patients are likely to require multiple revision surgeries over the course of many years. Patients who do not reach an acceptable level of control despite adequate surgery, intranasal corticosteroid treatment, and up to two short courses of antibiotics or systemic corticosteroids in the last year, are considered to have difficult-to-treat rhinosinusitis and tend to suffer from type 2 inflammation. Biologic agents that inhibit type 2 inflammation may suppress the inflammation, reverse the remodeling, and limit recurrence of inflammation, thereby altering the clinical course of the most severe cases of CRSwNP.

In this study we identified and characterized adult patients diagnosed with CRSwNP at Maccabi Health Services (MHS).

METHODS

All data was extracted from the Maccabi Healthcare Services (MHS) databse which includes up to 20 years of data on 2.1 million members (a representative sample comprising 25% of the Israeli population). Diagnoses were identified using the International Classification of Disease, 9th Edition (ICD-9-CM) codes as well as internal MHS codes for sub-classification.

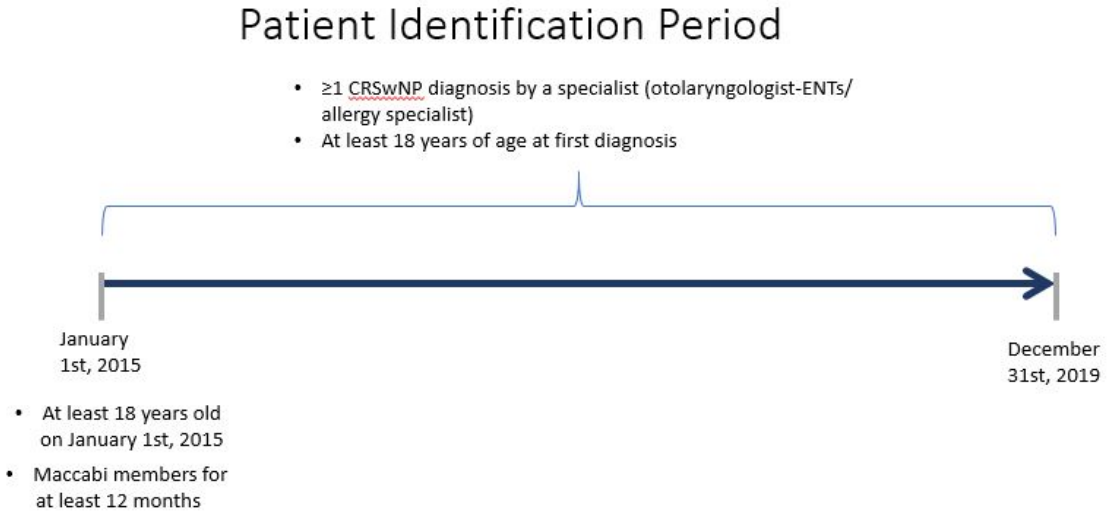
The study population was identified among MHS members who met all of the following inclusion criteria:

- ≥1 CRSwNP diagnosis by a specialist (otolaryngologist-ENTs/ allergy specialist) and at least 18 years of age at first diagnosis (defined according ICD-9-CM 471.X (471.0, 471.1, 471.8, and 471.9). the profession of the physician recording the diagnosis will be categorized into specialist (otolaryngologist/ allergy specialist).
- At least 18 years old on January 1st, 2015
- Maccabi members for at least 12 months prior to January 1st, 2015.
- Continuously enrolled in Maccabi from January 1st, 2015 through December 31st, 2019

Patients who entered MHS COPD registry were not excluded from the study and were identified among the study population.

Chi-square and Fisher's Exact Tests were used to compare patient characteristics among the populations with and without asthma.

Figure 1. Patient Identification Period



RESULTS

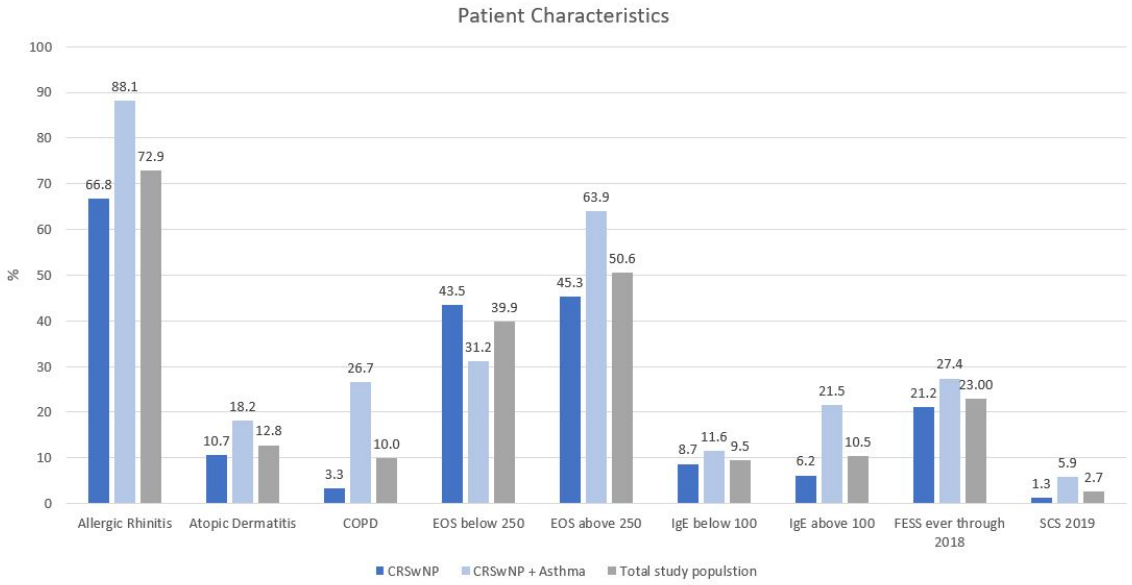
Through December 31st, 2019, 17,155 patients were identified as having ≥1 diagnosis of chronic rhinosinusitis with nasal polyps (CRSwNP) from either an ENT (n=16,974; 98.9%) or allergist specialist (n=181; 1.1%) at MHS. The overall prevalence of CRSwNP at Maccabi is 1.15%. Mean age at the end of the study period was 56.9 years (SD 15.1) and 60.7% of patients were male. Among the total study population, 4,940 (28.8%) patients were diagnosed with asthma and 12.2% of all patients smoked ever. Among asthma comorbid patients, 68.2% purchased asthma inhalation treatments and 12.2% of all included patients purchased intranasal corticosteroids in 2019.

Table 1. Patient Characteristics

Table 1. Patient Characteristics	Only CRSwNP N=12,215 (28.8%)	CRSwNP with Asthma N=4,940 (71.2%)	Total Population N=17,155 (100%)
Age at end of study period (SD)	(15.1) 56.8	(15.0) 57.1	(15.1) 56.9
Female (%)	(35.9) 4,391	(47.6) 2,350	(39.3) 6,741
Male (%)	(64.1) 7,824	(52.4) 2,590	(60.7) 10,414
Performed Spirometer (%)	(24.4) 2,980	(41.2) 2,033	(29.2) 5,013
Asthma Inhalation Treatments (%)	(10.7) 1,309	(68.2) 3,368	(27.3) 4,677
Intranasal Corticosteroid - 2019 (%)	(4.0) 484	(32.5) 1,607	(12.2) 2,091

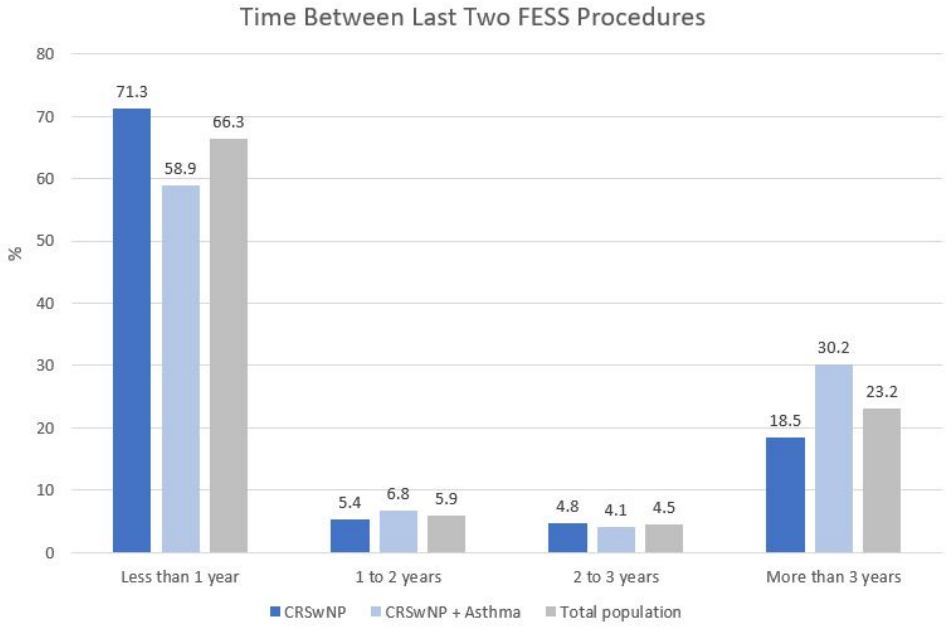
A higher prevalence of COPD (26.7%) and T2 inflammation related comorbidities AR (88.1%) and AD (18.2%) were observed among the asthma comorbid group. Among patients with available biomarkers, over 50% of patients had eosinophil levels ≥250/μL or IgE levels ≥100 with a greater prevalence among asthma comorbid patients.

Figure 2. Patient Characteristics



Patients diagnosed with CRSwNP and asthma generally had more FESS procedures ever through 2018 and in 2019 alone with a greater amount of time between their last two FESS procedures. Less than 1% of patients used Anti-IgE and Anti-IL-5 biologics and only two patients used Anti-IL-4Rα biologics.

Figure 3. Time Between Last two FESS Procedures



DISCUSSION

Repeated FESS procedures, high prevalence of T2 related comorbidities, and long-term use of corticosteroids suggests poor management of CRSwNP requiring new and advanced treatment options. An integrated therapeutic approach which targets the underlying T2 inflammation should be considered for the treatment of these patients.

*This study was sponsored by Sanofi

Citations

1. Larsen K, Tos M. The estimated incidence of symptomatic nasal polyps. Acta Otolaryngology 2002; 122:179-82.

2. Johansson L, Akerlund A, Holmberg K, Melen I, Bende M. Prevalence of nasal polyps in adults: the Skovde populationbased study. Ann Otol Rhinol Laryngol 2003; 112:625-9.

3. Tan BK, Chandra RK, Pollak J, et al. Incidence and associated premorbid diagnoses of patients with chronic rhinosinusitis. J Allergy Clin Immunol 2013; 131:1350-60.

4. Won HK, Kim YC, Kang MG, et al. Agerelated prevalence of chronic rhinosinusitis and nasal polyps and their relationships with asthma onset. Ann Allergy Asthma Immunol 2018; 120:389-94.

5. Stevens WW, Peters AT, Tan BK, et al. Associations between Inflammatory Endotypes and Clinical Presentations in Chronic Rhinosinusitis. J of Allergy and Clin Immunol in Practice. 2019