# The management of chronic rhinosinusitis in clinical practice: An International Survey

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**Chronic rhinosinusitis (CRS) is a common disease and is currently classified in two main phenotypes: CRS with nasal polyps (CRSwNP) and CRS without nasal polyps (CRSsNP). A panel of international experts conducted the present survey. A questionnaire, containing 25 questions, was completed by each member of the panel. About half of patients with suspected CRS had confirmed diagnosis. CRSwNP affected 31% of CRS patients. Endoscopy and CT were ever performed. Rhinitis and asthma were frequent comorbidities. Intranasal corticosteroids were prescribed on average in 86% of patients. Non-adrenergic compounds were prescribed by 71% of experts. Surgery for CRSwNP was performed in about half of patients; repeated intervention occurred in about one/third. In conclusion, the current survey demonstrated that CRS requires thorough diagnostic work-up, and the most common therapeutic approach is mainly based on intranasal corticosteroids, non-adrenergic decongestants, and surgery.**

The term chronic rhinosinusitis (CRS) defines an inflammatory disease affecting the nose and paranasal sinus [1]. It has to be noted that CRS may concern any age. For a definition, CRS lasts more than 12 weeks [1,2]. Rhinorrhea, nasal congestion, facial pain, and olfaction impairment are the most common symptoms [3–5]. The diagnosis of CRS initially relies on the clinical ground. However, there is evidence that fiber-optic endoscopy and computerized tomography (CT) must confirm the

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diagnosis [6–9]. According to the endoscopic and/or radiological findings, there are two main phenotypes: CRS with nasal polyposis (CRSwNP) and CRS without nasal polyposis (CRSsNP).

CRS is frequently associated with rhinitis and asthma; CRS may also be frequent comorbidity in patients with immunodeficiency, cystic fibrosis, and aspirin intolerance [9–11]. CRSwNP is a common trigger and/or worsening factor in patients with asthma [12,13]. Consistently, it has been documented that 36.7% of asthmatic patients had CRSwNP. Notably, a significant association between CRSwNP and asthma severity has been reported [14–18]. CRS is also frequent in patients with poorly controlled asthma [19]. CRS may cause hospital admission for asthma exacerbation [20]. Further, about 50% of children with persistent asthma presented concomitant CRS [21]. Therefore, CRS should be ever suspected in patients with rhinitis and asthma [22].

Recently, an Italian Survey has been conducted in patients with rhinosinusitis, recruited on the road; the study showed impressive outcomes useful in clinical practices [23]. Therefore, a panel of international experts of the ear nose throat (ENT) specialization participated in a survey by completing a questionnaire devoted to known the pragmatic approach to patients with CRS.

## MATERIALS AND METHODS

The current survey was performed using a questionnaire administered and completed in 24 Countries, including Albania, Azerbaijan, Belarus, Congo, Croatia, El Salvador, Germany, India, Iran, Iraq, Italy, Japan, Kazakhstan, Macedonia, Malaysia, Mexico, Moldova, Philippines, Romania, Slovenia, South Chorea, Sweden, Turkey, and Vietnam. The International Survey was performed using a questionnaire in August 2020. The questionnaire included 25 queries, reported in detail in Table I. The analysis of the data was descriptive. Data were expressed as absolute numbers or frequency.

## RESULTS

Globally, 25 International experts participated in the survey, equally distributed along with the world. The results are reported in Table I. The large majority (87.5%) of participants retain that CRS's prevalence increases in the last years. The patients with CRS make up about 30% (range 1-80%) of the cases relating to their clinical structure. On average, half of the patients with suspected CRS have diagnostic confirmation. The patients with CRSwNP are 31.2% of all patients with CRS.

All experts use both nasal fiber-optic and CT in the work-up of patients with suspected nasal polyps. Ancillary examinations, including nasal cytology and olfaction assessment, are less usually used (29% and 54.2% respectively); instead, quality of life evaluation is commonly performed (83.3%). On the other hand, olfaction impairment may affect about half of patients with CRSwNP, Asthma, and rhinitis comorbidity are relatively common: 20.6% and 41%, respectively.

Concerning the treatment, one third (range 1-100%) of CRSwNP patients are treated with oral corticosteroids, whereas intranasal corticosteroids are used in most patients (86.2%). Combined corticosteroids (oral and intranasal) are used in 30% of patients with nasal polyps. Nasal decongestants, such as α-adrenergic molecules, were used in 20.6% of patients. However, experts prescribe non-adrenergic decongestants, such as natural products and osmotic agents, in 71% of CRS patients. Also, nasal lavage is very common in clinical practice: 79% of patients use isotonic saline solution and 41.7% hypertonic saline solution.

An allergist is ever consulted by 16.6% of experts, in selected cases by 83.4%. A pulmonologist is ever consulted by 8.3% of the participants, in selected cases by 91.7%.

Surgery for nasal polyps is a therapeutic strategy for 55.2% of patients. About one-third of patients should repeat the nasal operation.

## DISCUSSION

CRS is a chronic inflammation of both the nose and the sinus. From an epidemiological perspective, it is estimated that CRS affects 5%-12% of the general population worldwide [24-26]. The European Position Paper on Rhinosinusitis and

**Table I.** Questionnaire

| Question | Answer |
|---|---|
| Do you believe that the prevalence of CRS is increasing in the last years? | Yes 87.5% |
| Which is the percentage of patients visited in your clinic with suspected CRS? | 28.9% (range 1-80%) |
| Which is the percentage of patients with suspected CRS who have the diagnostic confirm of CRS? | 53.3% (range 8-100%) |
| Which the percentage of CRS patients with CRSwNP? | 31.2% (range 3-70%) |
| Do you consider nasal fiber-endoscopy in the CRSwNP work-up? | Yes for 100% |
| Do you consider CT in the CRSwNP work-up? | Yes for 100% |
| Do you consider nasal cytology in the CRSwNP work-up? | Yes for 29% |
| Do you consider olfaction assessment in the CRSwNP work-up? | Yes for 54.2% |
| Do you consider Quality of Life assessment in the CRSwNP work-up? | Yes for 83.3% |
| Which is the percentage of your CRSwNP patients with olfaction impairment? | 48.1% (range 10-100%) |
| Which is the percentage of your CRSwNP patients with comorbid asthma? | 20.6% (range 3-60) |
| Which is the percentage of your CRSwNP patients with comorbid allergic rhinitis? | 41% (range 10-90%) |
| Which is the percentage of your CRSwNP patients treated with oral corticosteroids? | 36.2% (range 1-100%) |
| Which is the percentage of your patients treated with intranasal corticosteroids? | 86.2% (range 35-100%) |
| Which is the percentage of your patients treated with the combination of oral corticosteroids plus intranasal corticosteroids? | 29.8% (range 1-100%) |
| Which is the percentage of your patients treated with decongestants? | 20.6% (range 0-60%) |
| Do you prescribe non-adrenergic decongestants (e.g., natural compounds, osmotic agents)? | Yes for 71% |
| Do you prescribe nasal lavage with an isotonic saline solution? | Yes for 79% |
| Do you prescribe nasal lavage with a hypertonic saline solution? | Yes for 41.7% |
| Do you ever consult an Allergist? | Yes for 16.6% |
| Do you consult an Allergist in selected cases? | Yes for 83.4% |
| Do you ever consult a Pulmonologist? | Yes for 8.3% |
| Do you ever consult a Pulmonologist in selected cases? | Yes 91.7% |
| Which is the percentage of patients treated with surgery? | 55.2% (range 30-90%) |
| Which is the percentage of patients who need repeated surgery? | 31.9% (range 8-80%) |

Nasal Polyps (EPOS) proposed a statement about CRS diagnosis that is clinically based on symptoms supported by signs of mucosal inflammation found on imaging or with nasal endoscopy [27]. The prevalence of clinically-based CRS diagnosis usually ranged between 3% and 6.4% [28,29]. Using patient questionnaires, the prevalence of CRSwNP was 2.1% (France) to 4.3% (Finland) in Europe and 1.1% in China [30]. Based on this background, the current survey was conducted involving 25 International experts and a specific questionnaire.

The outcomes were impressive, as reflected in the standard practice in the management of CRS patients worldwide. There was a shared conviction that the prevalence of CRS is increasing worldwide. Consistently, CRS is a common disorder, representing about 30% of the admissions to ENT clinics, even with a vast range (1-80%). However, the suspected CRS diagnosis was confirmed in about half of the patients.

There was complete certainty that nasal fiber-endoscopy and CT are gold standard diagnostic tools in the CRS work-up. The quality-of-life assessment is also considered a relevant aspect that deserves adequate attention; more than 80% of participants measured it. As olfaction impairment is another relevant symptom affecting about half of CRS patients, its evaluation is performed by the 54%

of ENT experts. On the contrary, nasal cytology is rarely investigated (<30%).

The current survey reported that rhinitis and asthma are a common comorbidity in CRS patients as their prevalence is about 40 and 20%, respectively. Consistently the consultation of an allergist or a pulmonologist is common.

Regarding CRSwNP management, oral corticosteroids are prescribed in about one-third of patients, but the variability is vast (1-100%). Instead, intranasal corticosteroids are more frequently prescribed as the mean was 86.2% of CRSwNP patients. The combination of oral and intranasal corticosteroids is used in 30% of CRSwNP patients, but also, in this case, the range is vast, ranging from 1 to 100%. These crucial differences may depend on local aspects, including socio-economic issues, doctors' and patients' beliefs, mainly concerning the concept of corticosteroid phobia [31-33]. Consistently, using a-adrenergic decongestants is relatively scarce as prescribed in 20% of CRS patients, even though with wide variability (0-60%).

On the other hand, non-adrenergic decongestants are very popular, as 71% of ENT experts prescribed products containing natural compounds and/or osmotic agents. In this regard, a medical device is frequently used as exerts both anti-inflammatory and decongestant activities, as it contains glycyrrhetic acid and mannitol [34]. Also, nasal lavage with isotonic or hypertonic saline solution is frequently prescribed in CRS patients.

Surgery is a therapeutic option in about half of CRSwNP patients, but in one-third of cases has to be repeated over time.

Globally, the scenario that appears from this survey represents quite faithfully reflects the ENT specialist's behavior in the world. Namely, CRS is a common disease that frequently is managed by the ENT specialist. Its work-up requires adequate diagnostic procedures and thorough evaluation of particular aspects, including quality of life and olfaction. The therapeutic approach is mainly based on intranasal corticosteroids, non-adrenergic decongestants, and nasal lavage with saline solutions, as recently pointed out [35]. Surgery option is chosen in about half of CRSwNP patients, but post-surgery clinical relapses are uncommon.

The current survey has some limitations, including the cross-sectional design, the lack of a methodologically correct definition of the questions, and the answers based only on experts' opinions. On the other hand, the strength of this study is based on the worldwide provenience of participants.

In conclusion, the current survey demonstrated that CRS is a common disorder worldwide, the diagnostic work-up deserves the correct approach, and the therapeutic options are usually consistent with International guidelines.

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