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Inter-societal Survey on the topical nasal treatments in Italy

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ABSTRACT

Topical nasal therapy represents a widespread opportunity to treat upper airway diseases. As a result, specialists in different areas (mainly ENT, pediatrics, and allergology) and general practitioners prescribe intranasal compounds. However, a myriad of products and devices are available, as well as respiratory disorders. Consequently, this matter is debatable, and no guideline organically addresses this issue.

Considering these premises, a restricted panel of qualified experts promoted an initial multidisciplinary survey involving only Fellows of some Scientific Societies belonging to ENT, pediatrics, and allergology areas. The survey included a series of queries concerning practical aspects of topical nasal therapy (treated disease, devices, and agents). A web platform served to participate in this survey. Each participant anonymously completed the questionnaire.

Four hundred and forty-five doctors participated in the survey. There was a homogeneous distribution in Italy. Most participants were pediatricians (37%), followed by allergologists (31%) and ENT specialists (24%). Almost all doctors (95%) used topical nasal therapy. The most common diseases topically treated were allergic rhinitis (79%), chronic rhinosinusitis (73%), and non-allergic rhinitis. The most popular devices were pre-dosed spray both for nasal irrigation (67%) and nebulization (66%). Corticosteroids (67%), isotonic saline (63%), hyaluronic acid, hypertonic saline, and antihistamines (39%) were the most common agents used for intranasal therapy. Combined antihistamine/corticosteroids were also commonly used (38%). The most frequent schedule was the cyclic treatment. Most doctors (89%) claim they adequately spend time educating patients on this matter.

In conclusion, topical nasal therapy is commonly used to manage upper respiratory diseases. However, the disagreement about some issues requires greater knowledge of the topics and the need to develop new studies, including pragmatic ones.

Key words: topical nasal therapy, device, upper respiratory diseases, agents, survey

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Introduction

The nose is a gateway for pathogens, pollutants, allergens, and harmful substances, so inflammatory and infectious disorders are expected to happen in the nose and may spread to respiratory airways. However, the nose presents the advantage of being topically treated. Namely, topical nasal therapy is an approach known since ancient times. As a result, topical nasal therapy represents a popular way to administer different compounds directly into the nose.

On the other hand, topical nasal therapy constitutes an extended matter regarding treated disease, used devices, and prescribed agents. Moreover, no guidelines specifically or organically address this multifaceted issue.

A recent Intersocietal Delphi Consensus evaluated some debated perspectives about topical nasal therapy [1]. This Delphi Consensus provided interesting outcomes reinforced by the participation of 14 Scientific Societies involving ENT, pediatrics, and allergology areas. However, this Delphi Consensus reported a particular discrepancy among participants' agreements. Namely, the second round involved a panel of qualified experts who discussed and voted on the statements face-to-face, reaching a high consensus on all statements. On the contrary, the third round collected agreement grades through a web platform, reducing the agreement grade on some statements. This dichotomous behavior might hypothetically depend on an incomplete knowledge of some aspects of topical nasal therapy, a prerogative of some specialists. This gap could reflect a different approach to managing upper airway disorders.

Based on this background, the steering committee of the Intersocietal Delphi Consensus on topical nasal therapy decided to conduct an initial nationwide survey involving a large number of Italian specialists on this matter. The steering committee excluded general practitioners as a further survey should specifically consider them.

Therefore, the present Intersocietal Survey faced this theme by proposing a questionnaire to doctors who are Fellows of Scientific Societies in the ENT, pediatrics, and allergology areas. This survey aimed to collect and analyze information about the practical use of topical nasal therapy in Italy.

Materials and methods

Questionnaire

A panel of experts (some authors of this article, such as A.V., L.P., I.L.M., and G.C.) came together to form an *ad hoc* steering committee. The steering committee prepared a specific questionnaire aimed at specialists involved in managing upper airway diseases. The questionnaire consisted of questions regarding the geographic area of work, postgraduate work, and specific issues on topical nasal therapy.

The survey explored three main areas of topical nasal therapy use in clinical practice, mainly concerning the diseases treated, devices used, and prescribed agents.

Table 1, in detail, reports the single questions proposed in the survey.

Table 1. Questions included in the Intersocietal Survey on use of topical nasal therapy in Italy and answers.

Questions	Main answers
In which geographical area do you practice: North-West, North-East, Centre, South, Islands?	North-West 27.2% South 25.2% Centre 21.8% North-East 13.5% Islands 11.2%
Are you a specialist in: ENT, Pediatrics, Allergology?	Pediatrics 36.6% Allergology 31.5% ENT 24.3%
Do you use topical nasal therapy?	Yes 95.3%

Questions	Main answers
In which disease you use it (% of patients): • Vasomotor rhinitis • Allergic rhinitis • Non-allergic rhinitis • Viral rhinitis • Bacterial rhinitis • Atrophic rhinitis • Acute rhinosinusitis • Chronic rhinosinusitis with nasal polyps • Chronic rhinosinusitis without nasal polyps • Acute nasopharyngitis • Chronic nasopharyngitis • Acute adenoiditis • Chronic adenoiditis	Allergic rhinitis 79.1% Chronic rhinosinusitis with nasal polyps 78.6% Chronic rhinosinusitis without nasal polyps 73.1% Non-allergic rhinitis 72.0% Chronic adenoiditis 69.2% Acute rhinosinusitis 67.9% Acute adenoiditis 62.2% Bacterial rhinitis 56.3% Viral rhinitis 54.5% Chronic nasopharyngitis 50.4% Acute nasopharyngitis 47.5% Atrophic rhinitis 46.0% Vasomotor rhinitis 44.8%
What devices do you use? If yes, in what % of patients? **<u>Nasal Irrigation:</u>** • Simple syringe • Vials • Pre-dosed sprays • High-volume and low-pressure devices • Low-volume and high-pressure devices • Pressure-less drop devices • Mechanical nebulizer • Ultra-sound nebulizer **<u>Nebulization:</u>** • Pre-dosed sprays • Atomizers as nasal spray • Atomizers as micronized douche • Nasal douches as manual micronized • Nasal douches as pneumatic micronized • Nasal hairpin (Y)	**<u>Nasal Irrigation:</u>** Pre-dosed sprays 63.6% Simple syringe 43.1% Low-volume and high-pressure devices 40.2% High-volume and low-pressure devices 38.7% Vials 30.3% Pressure-less drop devices 27.0% **<u>Nebulization:</u>** Pre-dosed sprays 66.1% Nasal douches as pneumatic micronized 46.4% Nasal douches as manual micronized 39.6% Atomizers as nasal spray 36.3% Nasal hairpin (Y) 22.2%
What substances do you prescribe? If yes, in what % of patients? • Isotonic saline solution • Hypertonic saline solution • Vasoconstrictors • Corticosteroids • Antihistamines • Combined antihistamines/corticosteroids • Antivirals • Antibacterials • Natural antiseptics • Hyaluronic acid • Natural agents	Corticosteroids 67.2% Isotonic saline solution 63.0% Hyaluronic acid 39.6% Hypertonic saline solution 39.3% Antihistamines 39.1% Combined antihistamines/corticosteroids 37.6% Antibacterials 27.9% Natural antiseptics 20.1% Natural agents 15.9% Antivirals 14.2% Vasoconstrictors 8.5%
Do you use topical treatment in cycles?	Yes 88.8%
Do you use topical therapy continuously?	No 58.2%
Do you use topical treatment as needed?	Yes 53.4%
Do you explain to the patient how to use the various devices, their maintenance and durability?	Yes 89.4%

The survey consisted of administering the questionnaire to the participants, which the steering committee approved. For this purpose, a provider agency (Lingomed: a provider of ECM) set up a web platform allowing anonymous participation.

The invited participants were the Fellows of the same Scientific Societies involved in the Delphi Consensus on topical nasal therapy. Each Society's institutional website publicized the initiative with a specific banner and a link directly to the survey's web platform. Thus, all Fellows of each Society were the target of this initiative.

Table 2 lists the Scientific Societies adhering to the present initiative.

The participants anonymously completed the questionnaire using the same platform.

After collecting and analyzing the results, the steering committee discussed the results.

The survey process was conducted between April 2024 and May 2024.

Answers assessment

The scientific committee discussed the results in a virtual meeting. The statistical analysis was descriptive.

Table 2. List of Scientific Societies adhering to the initiative of a survey on topical nasal therapy.

Associazione Italiana Otorinolaringoiatri Libero Professionisti (AIOLP)
Associazione Allergologi Immunologi Italiani Territoriali e Ospedalieri (AAIITO)
Società Italiana di Allergologia e Immunologia Pediatrica (SIAIP)
Società Italiana di Otorinolaringoiatria e Chirurgia Cervico Facciale (SIOeChCF)
Società Italiana di Allergologia e Immunologia Pediatrica (SIAIP)
Società Italiana di Otorinolaringologia Pediatrica (SIOP)
Associazione Ospedaliera Italia Centromeridionale Otorinolaringoiatrica (AOICO)
Accademia Italiana di Citologia Nasale (AICNA)
Società Italiana di Otorinolaringologia Pediatrica (SIOP)
Società Italiana per le Malattie Respiratorie Infantili (SIMRI)
Accademia Italiana di Rinologia (IAR)
Società Italiana di Otorinolaringoiatria e Chirurgia Cervico Facciale (SIOeChCF)
Società Italiana di Allergologia e Immunologia Pediatrica (SIAIP)
Società Italiana di Otorinolaringoiatria e Chirurgia Cervico Facciale (SIOeChCF)
Società Italiana di Rinologia (SIR)
Società Italiana di Otorinolaringoiatria e Chirurgia Cervico Facciale (SIOeChCF)
Società Italiana di Allergologia, Asma ed Immunologia Clinica (SIAAIC)
Società Italiana di Allergologia e Immunologia Pediatrica (SIAIP)
Società Italiana di Pediatria Preventiva e Sociale (SIPPS)
Associazione Italiana Vie Aeree Superiori (AIVAS)

Results

Table 1, in detail, reports the answers to the questions included in the survey.

The geographic distribution of participants was fairly representative of the existing population in the various geographical areas, except for the North-East, where the population is the 19.6% of the Italian nation. The most represented group of participants was pediatricians (36.6%), followed by allergologists (31.5%) and ENT specialists (24.3%). These frequencies do not reflect the real number of different specialists, as ENT specialists are more numerous than allergologists.

Almost all participants (95.3%) declared to use topical nasal therapy.

The most common respiratory diseases treated through topical nasal therapy were allergic rhinitis (79.1%), chronic rhinosinusitis (mainly if associated with nasal polyps: 78.6%), non-allergic rhinitis (72%), adenoiditis (mostly if chronic: 69.2%), acute rhinosinusitis (67.9%), bacterial rhinitis (56.3%), viral rhinitis (54.5%), chronic nasopharyngitis (50.4%), and acute nasopharyngitis (47.5%).

Regarding the devices used, two main types were considered: nasal irrigation and nebulization. As regards nasal irrigation, pre-dosed spray was the most common device (63.6%), followed by simple syringe (43.1%), low-volume and high-pressure devices (40.2%), and high-volume and low-pressure systems (38.7%).

As concerns the prescribed agents, intranasal corticosteroids were the most frequent drugs (67.2%), followed by isotonic saline (63%), hyaluronic acid (39.6%), hypertonic saline (39.3%), antihistamines (39.1%), antibacterials (27.9%), natural antiseptics (20.1%), natural agents 15.9% and antivirals (14.2%).

Combined antihistamine/corticosteroids were also commonly used (37.6%). The most frequent schedule was the cyclic treatment, as recommended by 88.8% of participants. Continuous treatment was prescribed by 41.8%, and on-demand treatment was advised by 53.4%.

Most doctors (89%) adequately spent time educating patients on this matter.

Discussion and conclusion

Topical nasal therapy has some advantages compared to systemic one as it is more rapid and effective, allows a better distribution into the nasal cavity, and considerably reduces the dosage and, consequently, side effects [2]. However, topical nasal therapy is an umbrella term that collects different diseases, devices, and agents. In addition, many specialists follow this approach, and no guideline organically faces this issue. As a result, topical nasal therapy is a complex matter and presents some controversial aspects.

The present survey aimed to portray its actual use in Italian clinical practice. This initiative followed a previous Intersocietal Delphi Consensus that involved a panel of experts in this field designed by 14 Italian Scientific Societies concerning this therapeutic area. That document reported a discrepancy in the agreement grade between qualified and other experts (manuscript submitted). This misalignment may depend on the specific knowledge of this matter owned by the different specializations. In addition, personal attitude may contribute to understanding this treatment route.

Therefore, the present survey provided information that reflects the real practice in Italy regarding this therapeutic modality.

Interestingly, pediatricians were the most represented specialists, followed by allergologists, and ENT specialists. However, it has to be underlined that many ENT specialists are surgeons; indeed, a substantial part of ENT discipline is surgical and does not concern the medical therapy.

Anyway, almost all participants (95.3%) used topical nasal therapy. This high percentage might depend on the fact that overall, doctors using topical nasal therapy participated in the survey.

Allergic and non-allergic rhinitis are frequently treated using topical agents. Despite the duration and presence of polyps, rhinosinusitis and adenoiditis consistently represent the most common diseases topically treated. The high percentage of participants who were favorable to topically treating these diseases may depend on the dissemination of specific guidelines and position papers [3-8].

Regarding the devices used for administering topical therapy, a first distinction should consider nasal irrigation and nebulization separately. As defined by several studies, nasal irrigation does not medicate the airways *per se* [9-11]. However, the saline nasal irrigation, as recently underlined by a Cochrane analysis, may reduce the symptom severity perceived by patients (children and adults) with allergic rhinitis [12].

Actually, nasal irrigation washes the nose and prepares it to better respond to treatments [13]. On the contrary, nebulization represents the correct way to administer intranasal therapy [14]. The most crucial point is the dimension of the particles generated by the different devices, such as the mass median aerodynamic diameter (MMAD). The correct diameter should be between 10 and 50 μm [15]. Accordingly, the pre-dosed spray was the most used device, as it guarantees an adequate dimension, assuring a complete distribution through the nasal cavity, but not in the nasopharynx, in the paranasal sinus and in Eustachian tube [16]. However, nasal micronized douches and some nasal atomizers are devices suitable for the treatment of nasopharynx, as it plays a pathophysiological 'carrefour' role, in respiratory diseases, being the site of: post-nasal drip, respiratory microbiome of the upper airways, possible bacterial biofilms, cause of recurrence of infections.

Compounds used in topical nasal therapy: Corticosteroids were the preferred molecules, followed by saline solution (mostly isotonic) and hyaluronic acid.

Antihistamines and combined antihistamine/corticosteroid medications were also frequently prescribed. These results are consistent with the guidelines' and position papers' recommendations to dampen inflammation, remove secretions, and relieve symptoms [2-8].

Regarding infections, a fair percentage of participants, use antibacterial and antiviral drugs, such as: antibacterials (27.9%), natural antiseptics (20.1%), natural agents (15.9%), and antivirals (14.2%). In this regard, natural antiseptics may include different substances, for example the extracts of eucalyptus, geranium, lavender, mint, niaouli, pine, rosemary, thyme, vitamin D, probiotics [17,18]. Natural agents may include a myriad of substances, including, for example, resveratrol, lactoferrin, quercetin, and glucans [19-21].

Regarding the duration of treatments, the cycle schedule is preferred, followed by on-demand suggestions. On the contrary, continuous treatments are less prescribed. These findings confirm the relevant concept of tailoring the treatment on a personalized approach that considers various aspects, e.g., the pathophysiological mechanisms involved in the specific patient, the fear of systemic side effects, the patient's preference, the seasonality of diseases (allergies, infections), and so on.

Finally, most participants acknowledged that patient education and instruction are cornerstones in managing patients topically treated.

Therefore, the present survey underlined some peculiar aspects of topical nasal therapy: inflammatory diseases are the preferred target, pre-dosed sprays are the ideal device, and corticosteroids and antihistamines are commonly prescribed.

However, this survey had some limitations, including a relatively limited number of participants and a scarce participation of ENT specialists. The questionnaire was not validated, and the results reflected the single opinion and self-allegations of participants and did not constitute robust evidence.

In conclusion, topical nasal therapy is a widespread method of treatment administration. However, the disagreement about some issues requires greater knowledge of the topics and the need to develop new studies, including pragmatic ones.

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