The management of upper airway diseases: an ongoing challenge for the clinician

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Upper airway diseases are widespread in clinical practice. However, some aspects are still debated. The current supplement presents and discusses the most common disorders encountered in daily medical activity. The COVID-19 dramatic pandemic requires an urgent solution. Promising non-pharmacological agents are discussed. Chronic diseases are frequent in childhood, so to know risk factors is useful in their management. Allergic rhinitis and chronic rhinosinusitis should be treated with anti-inflammatory drugs, but complementary compounds should be alternated to preserve health. Empty nose syndrome is a frequent complication of nasal surgery and requires adequate staging and hydrating procedure. Lastly, laryngopharyngeal reflux is an intriguing challenge for the clinician. Alginates represent a safe and effective way to relieve LPR symptoms.
Prevention and treatment of upper respiratory diseases in the pandemic COVID-19 era

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In the pandemic coronavirus disease 2019 (COVID-19) era, the need to use preventive-curative treatments is compelling. A series of non-pharmacological compounds, including oligo-elements, vitamins, nutraceuticals, and bacteriotherapy, might affect the risk of COVID-19, both reinforcing the immune system and improving the inflammation resolution during respiratory infections. Non-pharmacological remedies are very popular and usually have no relevant side effects. Bacterial and natural products may potentiate the immune system against respiratory viruses. Moreover, these compounds also exert anti-inflammatory and antioxidant activity. Consequently, these non-chemical remedies could be prescribed to build up the immune defence and adequately treat the upper respiratory infection. In this way, natural compounds could be used to manage people in the pandemic COVID-19 era.
Lactoferrin: a potential candidate to fight respiratory infections in the pandemic COVID-19 era

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Respiratory infections are a significant burden at any age, but especially in childhood and aging. The COVID-19 pandemic has worsened the issue since there is no specific treatment and vaccine is not available. Moreover, respiratory symptoms cause social stigma in subjects suffering from an infection of any kind. As new drugs require a very long time to be marketed, a natural compound’s interest is growing. In this regard, lactoferrin is a multifunctional protein present in secretions, mainly in breast milk. Lactoferrin has marked antimicrobial activity, including antibacterial, antiviral, antiparasitic, and antifungal. Moreover, lactoferrin strongly affects immune response and cellular control activity. Therefore, this natural component could provide a promising effect in preventing respiratory infections and potentially also for COVID-19.
Glycyrrhizin for topical use and prophylaxis of COVID-19: an interesting pharmacological perspective

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COVID-19, the disease caused by the SARS-CoV-2 pathogen, is currently a pandemic. At the moment there is not an available vaccine, so, scientific community is looking for strategies and drugs to implement prevention and prophylaxis. Several compounds are examined for this purpose. Glycyrrhizin, an alkaloid extracted from licorice plant (glycyrriza glabra), is one of the most studied molecules, both for its peculiar biological functions and for its pharmacological effects. This brief review aims to highlight the characteristics of glycyrrhizin for topical use on the nasal and ocular surfaces. The anti-inflammatory activity, the ability to inhibit the accumulation of ROS, the antiviral property, but, above all, the ability to bind the ACE receptor and the SARS-CoV-2 protein S in the extracellular environment make Glycyrrhizzin for topical use a compound with a high prophylactic potential for SARS-CoV-2 infection, also due to its low cost and the absence of significant side effects.
Can *Pseudomonas aeruginosa* growth be modulated by natural compounds?

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*Pseudomonas aeruginosa* is an opportunistic human pathogen that frequently induces antibiotic resistance, as it mainly tends to form biofilms. Iron chelation may be an intriguing strategy to contrast bacterial growth. Lactoferrin is a natural compound able to chelate iron. A new multi-component medical device also contains lactoferrin. This study analyzed this compound investigating the *in vitro* capacity to inhibit *Pseudomonas aeruginosa* growth. In conclusion, this study demonstrated that a multi-component medical device (Saflovir), also containing lactoferrin, could inhibit the *in vitro* growth of *P. aeruginosa*. This activity could be positively used in the prevention of respiratory nasal infections.
Sleep-disordered breathing (SDB) is a common disorder in childhood. Snoring and obstructive sleep apnea represents a demanding challenge for both paediatricians and otolaryngologists. This real-life study investigated the association of demographic and clinical factors on snoring and sleep apnea in children consecutively visited. In this study, 1,002 children (550 males, mean age 5.77 ± 1.84 years), complaining upper airway symptoms, were prospectively enrolled during 2015-2017. Medical history, clinical examination, and fiberoptic nasopharyngoscopy were performed in all children. Tonsil hypertrophy significantly predicted sleep apnea (OR 95.08) and snoring (OR 5.44). Asthma comorbidity significantly predicted snoring (OR 2.26). Breastfeeding could be a protective factor for sleep apnea (OR =0.37). SDB is a frequent disorder observable in otorhinolaryngological practice. Tonsil hypertrophy and asthma could be considered predicting factors for both snoring and sleep apnea, whereas breastfeeding was a protective factor for SDB.
Acute otitis media (AOM) is the most common bacterial infection in children. Some children with AOM tend to be otitis-prone, such as frequent recurrence of AOM (RAOM). Possible RAOM risk factors are widely debated. The current study was performed in a real-life setting, such as an otorhinolaryngologic (ORL) clinic, to identify predictive factors, including clinical data and endoscopic findings, for RAOM in children. In this study, 1,002 children (550 males, 452 females, mean age 5.77 ± 1.84 years) complaining of upper airway symptoms were consecutively visited. Detailed clinical history and nasal endoscopy were performed. Throughout the ORL visit, it was possible to define some factors involved in the recurrence of AOM, including female gender, artificial feeding, tonsillar and adenoid hypertrophy. Adenoid and tonsillar hypertrophy, female gender, and artificial are factors significantly associated with RAOM. Therefore, reducing adenoid and tonsil size, also using topical corticosteroids or glycyrrhizin, could be a reasonable strategy to potentially reduce adenoid and tonsil size. The current study suggests that also in a primary care setting, it is possible to achieve meaningful information that is relevant in clinical practice.
The impact of Allergic Rhinitis in clinical practice: An International Survey

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Abstract Allergic rhinitis (AR) is a frequent disease caused by an IgE-mediated inflammation of the nose and characterized by typical symptoms. Diagnostic workup is directed to document the production of specific IgE (sensitization). Clinical management aims to relieve symptoms, resolve allergic inflammation, use medications, and potentially induce allergen tolerance, using allergen immunotherapy (AIT). The current survey was conducted in 17 International ear nose throat experts using a questionnaire with 20 questions concerning the practical management of AR patients. It was administered in the 2020 summer. The large majority (94%) of participants use the ARIA classification in clinical practice. On average, subjects with suspected AR represent half of the patients who turn to the ENT experts; 80% have the confirmed diagnosis. Most of the experts use both cutaneous and serum assay to document IgE production. Antihistamines are prescribed in 59% of AR patients, intranasal corticosteroids in 69%, non-adrenergic decongestants in 88%, nasal lavage in 88%, and AIT in 22%. About 68% of AR patients had turbinate hypertrophy, which requires surgery in 62% (mostly surgical decongestion). In conclusion, the current International Survey demonstrated that AR is a common disorder worldwide, the diagnostic workup is mainly based on IgE assessment, and the therapeutic approach is also based on non-pharmacological remedies.
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.
A practical classification of the Empty Nose Syndrome

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The empty nose syndrome (ENS) entails different clinical conditions usually caused by nasal surgery. Many pathogenic factors contribute to the disease progression. Symptoms may be very bothersome and significantly affect the quality of the life. Many therapeutic strategies have been proposed. In this regard, a new multicomponent medical device, containing hyaluronic acid, D-panthenol, vitamin A and E, and biotin, seems to provide promising results.
Laryngopharyngeal reflux management in clinical practice

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Laryngopharyngeal reflux (LPR) is an inflammatory reaction of the mucosa of the pharynx, larynx, and other associated upper respiratory organs, caused by a reflux of stomach contents outside the esophagus. LPR is considered a relatively new clinical entity with a vast number of clinical manifestations that are sometimes treated empirically and without a correct diagnosis. Alginate is a reasonable therapeutic option as a first-line or add-on option. A survey included 35 Italian orohinolaryngologists. The survey considered ten practical queries. LPR is a common disease in clinical practice. History and fiber-optic endoscopy constitute the main diagnostic tools. Alginites represent a frequent medication to treat LPR both as first-line and add-on. The mean effectiveness rate is 44% for first-line choice and 76% for the add-on. In conclusion, the current survey provided exciting information about the management of LPR in clinical practice.
Magnesium alginate in patients with laryngopharyngeal reflux

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Laryngopharyngeal reflux (LPR) is a common disease caused by the leaking beck of gastric material out of the esophagus. The main symptoms are dysphonia, dysphagia, and cough. There is an established use of proton pump inhibitors (PPI) in patients with suspected LPR in common practice. This habit is translated by the standard strategy to use PPI in treating patients with gastroesophageal reflux. However, PPI can not wholly inhibit all types of reflux and are burden by adverse effects. Alginate, a derivative from algae, is devoid of side effects and effectively counteracts gastric material reflux forming a foaming gel in the stomach. The current study enrolled 100 outpatients with LPR. Alginate treatment was administered for two months. Patients underwent four visits (at baseline and 15, 30, and 60 days after treatment). A visual analog scale assessed the perception of dysphonia, dysphagia, and cough. Alginate significantly (p<0.0001) reduced all parameters. Therefore, the current study demonstrated that magnesium alginate was effective and safe in LPR treatment.