Probiotics for the management of upper respiratory diseases

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Probiotics represent an intriguing challenge in clinical practice. They are currently used worldwide in all fields of Medicine. The present Supplement reports some Italian experiences concerning a probiotic mixture (Abincol®) employed in patients with upper respiratory diseases. A group of Italian otolaryngologists conducted these experiences in a real-world setting. The results demonstrated that this compound might represent a useful therapeutic option in clinical practice. In particularly, this probiotic mixture was tested in patients with rhinosinusitis, pharyngotonsillitis, otitis media, and laryngotracheitis.
A probiotic mixture in patients with upper respiratory diseases: the point of view of the otorhinolaringologist.

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Probiotics in the add-on treatment of pharyngotonsillitis: a clinical experience

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Pharyngotonsillitis is a common disease, mainly characterized by a sore throat. It may be classified as acute or chronic, based on duration. The diagnosis is usually performed on the clinical ground, and antibiotic therapy is frequently used in clinical practice. However, antibiotics frequently induce intestinal dysbiosis associated with some clinical problems. Therefore, probiotics are commonly prescribed in patients treated with antibiotics. The current clinical experience was conducted in patients with pharyngotonsillitis and treated with antibiotics. A one-month course of a probiotic mixture (Abincol® containing Lactobacillus plantarum LP01 (1 billion of living cells), Lactobacillus lactis subspecies cremoris LLC02 (800 million of living cells), and Lactobacillus delbrueckii subspecies delbrueckii LDD01 (200 million of living cells), was prescribed in the Group A, and was compared with no add-on treatment, such as the Group B. Patients were evaluated at baseline (T0), at the end of antibiotic treatment (T1), at the end of probiotic course (T2), and at the end of 3-month follow-up (T3). Globally, 1118 outpatients were enrolled. Acute pharyngotonsillitis affected 795 subjects: 396 in Group A and 399 in Group B. Chronic pharyngotonsillitis affected 323 outpatients: 158 in Group A and 165 in Group B. All patients were usually treated with a 7-10-day course of antibiotic therapy. In patients with acute pharyngotonsillitis, the probiotic mixture significantly reduced the duration of all the symptoms (p<0.001 for all), except
for the urinary tract infection, associated with antibiotic therapy which was already at the end of the antibiotic cycle (T1). The intergroup analysis showed that patients with chronic pharyngitonsillitis in Group A had significantly less tiredness, pain, and malaise (p<0.001 for all) than patients in Group B at T1. The probiotic course reduced the possible clinical relapse, and the use of additional medications at T2 and T3 in patients with both acute and chronic pharyngitonsillitis. In conclusion, the present clinical experience demonstrated that a probiotic mixture containing *Lactobacillus plantarum* LP01, *Lactobacillus lactis* subspecies cremoris LLC02, and *Lactobacillus delbrueckii*, was able to quickly reduce symptoms, possible relapse, and use of additional medications, associated with antibiotic therapy, in patients with both acute and chronic pharyngitonsillitis.
Probiotics in the add-on treatment of otitis media in clinical practice

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Otitis media (OM) affects the middle ear and is typically characterized by earache. OM may be classified as acute (AOM) or chronic (COM), based on symptom duration. OM may be clinically suspected, but the diagnosis is usually confirmed by the otoscopy. Antibiotic therapy is frequently used in clinical practice. However, antibiotics often induce intestinal and respiratory dysbiosis associated with some clinical problems. A one-month course of a probiotic mixture (Abincol® containing Lactobacillus plantarum LP01 (1 billion of living cells), Lactobacillus lactis subspecies cremoris LLC02 (800 million living cells), and Lactobacillus delbrueckii LDD01 (200 million living cells), was prescribed in the Group A, and was compared with no add-on treatment, such as the Group B. Patients were evaluated at baseline (T0), at the end of antibiotic treatment (T1), at the end of probiotic course (T2), and at the end of 3-month follow-up (T3).
Probiotics in the add-on treatment of rhinosinusitis: a clinical experience

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Rhinosinusitis (RS) affects the nose and the paranasal sinus and is characterized by nasal and systemic symptoms. It may be classified as acute or chronic, based on duration. Rhinosinusitis may be clinically suspected, but the diagnosis is usually based on the endoscopy. Antibiotic therapy is frequently used for RS patients in clinical practice. However, antibiotics often induce intestinal dysbiosis associated with some clinical problems and respiratory microbiota impairment. The current clinical experience was conducted in patients with pharyngotonsillitis and treated with antibiotics. A one-month course of a probiotic mixture (Abincol® containing *Lactobacillus plantarum* LP01 (1 billion of living cells), *Lactobacillus lactis* subspecies cremoris LL02 (800 million living cells), and *Lactobacillus delbrueckii* LDD01 (200 million living cells), was prescribed in the Group A, and was compared with no add-on treatment, such as the Group B. Patients were evaluated at baseline (T0), at the end of antibiotic treatment (T1), at the end of probiotic course (T2), and at the end of 3-month follow-up (T3).
Probiotics in the add-on treatment of laryngotracheitis: a clinical experience

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Laryngotracheitis is a common disease, mainly characterized by dysphonia, cough, and sore throat. The diagnosis is usually based on the clinical ground, and antibiotic therapy is frequently used in clinical practice. However, antibiotics frequently induce intestinal dysbiosis associated with some clinical problems. The current clinical experience was conducted in patients with pharyngotonsillitis and treated with antibiotics. A one-month course of a probiotic mixture (Abincol® containing Lactobacillus plantarum LP01 (1 billion of living cells), Lactobacillus lactis subspecies cremoris LLC02 (800 million living cells), and Lactobacillus delbrueckii LDD01 (200 million living cells), was prescribed in the Group A, and was compared with no add-on treatment, such as the Group B. Patients were evaluated at baseline (T0), at the end of antibiotic treatment (T1), at the end of probiotic course (T2), and at the end of 3-month follow-up (T3). Globally, 833 outpatients with laryngotracheitis were enrolled: 425 in Group A and 408 in Group B. All of them were treated with a 7-10-day course of antibiotic therapy. The probiotic mixture reduced the duration of symptoms associated with antibiotic therapy already at the end of the antibiotic cycle. The intergroup comparison showed that probiotic group patients experienced less fever, tiredness, headache, pain, malaise, diarrhea, and nausea (p<0.001 for all) than control patients at T1. The probiotic course reduced the possible clinical relapse, and the use of additional medications at T2 and T3. In conclusion, the present clinical experience demonstrated that a probiotic mixture containing Lactobacillus plantarum LP01, Lactobacillus lactis subspecies cremoris...
LLC02, and *Lactobacillus delbrueckii subspecies delbrueckii*, was able to rapidly reduce symptoms associated with antibiotic therapy in patients with laryngotracheitis.
Non-pharmacological remedies for 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 supplements (oligoelements and vitamins), probiotics, and nutraceuticals, might affect the risk of COVID-19 or reducing clinical severity. Non-pharmacological remedies are easily available and usually have no relevant side effects. There is evidence that bacterial and molecular substances may potentiate the immune system against respiratory viruses. Moreover, these compounds might exert essential anti-inflammatory and antioxidant activity in COVID-19. Furthermore, nasal lavage may be an additional resource for reducing the viral load and restore the integrity of respiratory patency. Therefore, preventive courses using non-pharmacological remedies could be prescribed to reinforce the immune response and adequate treatment of upper respiratory infection with natural compounds could be considered a reasonable way to manage people in the pandemic COVID-19 era.