

ATOPY

The chiropractic care of a pediatric patient with asthma, allergies, and chronic colds

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Objective: The purpose of this case report is to describe the chiropractic care of a pediatric patient with symptoms of asthma and allergies.

Clinical features: The patient was a 7-year-old male suffering from chronic colds, allergies, and asthma since the age of 5 months. At initial evaluation, the patient was on a once per day prescription of Alavertâ and Ventolinâ. The patient's mother reported that his asthma symptoms were associated with "getting the cold." The patient, since his first year of school, missed approximately 1–2 days of school per month due to "colds" and asthma and required monthly doctor's visits due to illness.

Interventions and outcome: The patient was cared for using site-specific, low-force spinal manipulative therapy (SMT) using a manually assisted hand-held instrument (i.e., activator methods). The patient's response to care was positive. Within two weeks of beginning SMT, the patient's parents elected to undergo a trial of discontinued allergy and asthma medications. At two months of care, the patient's treatment regimen was discontinued due to continued improvement in the patient's allergy and asthma symptoms. However, the patient's parents requested their child to be placed on "wellness visits." The patient was scheduled at one visit every 3–4 weeks. In the 5 months since initiating chiropractic care, the patient had not missed any school days due to illness and had only wellness checkups with his family physician.

Conclusion: This case report provides supporting evidence on the effectiveness of alleviating the symptoms of asthma and allergies. We advocate for continued research on the role of chiropractic and other CAM therapies into these common disorders of childhood.

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Anti-inflammatory abilities of Imupret®: Inhibition of IL-8 and human β -defensin 2 induced by LPS and IL-1 β in lung epithelial A549 cells

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Background: The respiratory epithelium is a major portal of entry for pathogens and applies various defense mechanisms. Recruitment of neutrophils in airway inflammation may account for the generation of interleukin 8 (IL-8), which is also generated by tissue cells after stimulation by

endotoxin (LPS) or proinflammatory cytokines. This study was designed to evaluate the effectiveness of the commercial herbal medicinal product (Imupret®, Bionorica AG) in the modulation of airway inflammation. For the production of IL-8 and human β -defensin 2 (hBD-2), LPS and interleukin-1 β (IL-1 β) activated A549 bronchial epithelial cells were analyzed.

Materials and methods: A549 cells, which express toll-like receptor 4 (TLR4), were used. The cytotoxicity and anti-proliferative effect of Imupret® (50–2000 μ g/ml) were investigated (propidium iodide uptake, WST-1 assay). LPS from *Pseudomonas aeruginosa* (100 μ g/ml) or IL-1 β (50 ng/ml) were used as stimulating agents. Dexamethasone (10^{-7} M) served as positive anti-inflammatory control. IL-8 and hBD-2 production were detected in the supernatants of A549 cells after 18 h with commercially available ELISA test kits (Bender MedSystems, CA; Phoenix Pharmaceuticals, CA). Imupret® dissolved in single solvents (bidest H₂O, cell culture medium, 70% (v/v) ethanol and DMSO) was investigated at nontoxic concentrations in the range between 0.01 and 100 μ g/ml.

Results: Imupret® (50–2000 μ g/ml) in different solvents showed dose-dependent growth inhibitory effect on A549 cells. Comparative studies indicate quantitative differences concerning 50% growth inhibitory (GI₅₀) concentrations ranging between 122–823 μ g/ml. Viability of cells was not affected. The growth inhibitory effect of water and DMSO extracts was significantly diminished in LPS-primed cells at concentrations above 100 μ g/ml in contrast to medium and ethanol preparations. Production of IL-8 after stimulation by LPS or IL-1 β in A549 cells was significantly inhibited by pretreatment with Imupret®. IL-8 level of LPS-stimulated cells was decreased about 20–40% by Imupret® (1–100 μ g/ml) treatment; however in IL-1 β -primed cells 30% (100 μ g/ml) and 20% (10 μ g/ml) decreases were detected. IL-1 β up-regulated level of hBD-2 was inhibited by Imupret® at concentrations between 0.1 and 100 μ g/ml.

Conclusion: Imupret® may help to suppress airway inflammation by inhibiting IL-8 production and down-regulation of hBD-2 (increased level in chronic inflammatory diseases) in epithelial cells.

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Anti-microbial potential of medical plant extracts (Sinupret®) regarding sinusitis

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Introduction: Sinusitis is a common disease in public. About 85–90% of anti-microbial drugs are used in the community; up to 80% are used to treat respiratory tract infections. Antibiotics are getting limited in the case of bacterial resistance. Plants are known to be active against many infectious microbials and are widely used, with high evidence of safety and efficacy due to clinical day-to-day experience. Therefore it seems very interesting to study

which effects phytomedicinal extracts induce in respiratory cells and which effects they demonstrate against relevant bacteria. Therefore it is interesting whether or not plant extracts induce activity in the first- and second-line defense of nasal mucosa. We addressed our interest to the capabilities of these substances in influencing in either human anti-microbial activity in nasal mucosa or direct anti-microbial activity *in vitro*.

The anti-microbial activities of plant extracts were determined by *in vitro* bioassays using agar diffusion method. The minimal bactericidal concentration (MBC) and lethal dose, LD90/50, were calculated for gram-positive and -negative bacterial standard strains. Bacteria strains were selected according to their relevance on upper airway infection.

We could find out that Sinupret[®] either induces human anti-microbial peptides or has direct anti-microbial activity against some of the bacteria. This has been shown concerning MBC, LD90, and LD50.

Conclusion: Phytomedicinal extracts revealed distinct anti-bacterial activities. The astonishing, hitherto unknown, anti-bacterial activities of the commercially phytochemical and its extracts gave some promising clues on the anti-infective efficacy of the drug observed in clinical experience and this encourages us to elucidate the anti-microbial efficacy of phytochemical drugs.

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Preclinical development and animal trials in herbal treatment—Examples from Sinupret[®]

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The persistence of the inflammatory response in sinusitis is not only dependent on individual differences in host immune responses, but also on specific influence of these responses by local microbes. Understanding and differentiating infectious and non-infectious inflammatory stimuli are critical to understand sinusitis. Emerging data speak towards aberrant immune responses, i.e. defect transition and timing of innate and acquired immunity, leading to locally reduced host defence. Strategies for preclinical development must involve well-designed *in vitro* and *in vivo* (animal) studies to analyse the herbal-specific effects on improved host defence immune responses.

In the present study on acute experimental rabbit sinusitis, a reductive effect of Sinupret[®] herbal compound was evident on mucosal histopathology, bacterial counts and macroscopical pathology. This was further verified and documented by computer tomography (CT) scan investigation of sinus opacification. Thus the experimental data from the clinically well-known herbal composition Sinupret[®] show strong anti-inflammatory effects but also display clear anti-bacterial effects in relation to take, initiation, plateau and resolution of the specific microbial infection, and the effects are as well most likely dependent on modulation of innate immunity. This knowledge opens up the possibility to

tailor treatment strategies more closely to the individual pathophysiology of rhinosinusitis.

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Toward a phenomenological systems biology approach of atopic asthma treatment

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Introduction: Bronchial asthma treatment would benefit from innovative methods that diminish the need for (inhalation) corticosteroid therapy (ICT). In integrative medical practice, the call for effect-based therapeutic interventions, which include views such as are used in complementary medicine, is growing.

An approach that includes changes in other physiological systems than those that are directly involved may render innovative methods for integrative medicine that will lead to new therapeutic venues for atopic asthma. One reason that biological systems can be difficult to study is that so many different interactions with other organisms and the environment are possible.

One of the goals of phenomenological systems biology is to discover new emergent properties in the entirety of processes that take place in a biological system. An integrative systems biology approach of the clinical symptoms of atopic asthma may be used to validate therapies that are used in integrative medicine.

Method: Phenomenological systems biology is a systematic study of complex interactions in biological systems, using the perspective of integration rather than reduction to study them. It first gathers the signs and symptoms of patients with atopic asthma. Then it characterizes them taking into account the organism's functioning as a whole.

Results: The characteristic clinical symptoms of asthma include strained inspiration, increased awareness and tight musculature. These symptoms indicate increased nervous system activity. At the same time, metabolic activity in the respiratory tract is increased as a result of inflammatory processes, and intestinal metabolic activity is impaired. The highly differentiated anatomical and physiological function of the bronchial part of the respiratory tract is disturbed. It has shifted toward functions that are normal in the upper respiratory tract, situated in the head.

A functional dislocation destroys the balance between organ systems in asthma. Treating asthma benefits from treating the increased nervous activity and the disturbed metabolic and intestinal activity as well as the respiratory problems. This is realized by therapeutic interventions that are used in complementary medicine, which also reduce the need for ICT.

The validity of the model will be demonstrated at hand of the treatment of asthma in anthroposophic medicine (AM). As