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Clinical and experimental studies on the immunomodulatory effects of herbal agents in traditional medicine: Focus on allergy and asthma

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Allergic disorders result from dysregulation of the immune system and immunomodulatory and related anti-inflammatory agents from the cornerstones of pharmacotherapy. Bronchial asthma is a heterogeneous disease primarily of allergic origin, involving inflammation of the airways accompanied by airway hyperactivity and reversible bronchoconstriction. Airway inflammation is central to asthma and complex process involving the interactions between cellular and humoral components. Immunological mediators produced by inflammatory cells such as mast cells, eosinophils, basophils, neutrophils, dendritic cells and lymphocytes play crucial roles in asthma pathophysiology. The current approach to the management of asthma includes conventional drug therapy with corticosteroids and bronchodilators. However these drugs, in addition to being expensive, produce various local and systemic adverse effects which restrict their use. This has lead to search for safer and more viable alternative forms of therapy from the traditional system of medicine. Traditional systems of medicine (Unani and Ayurveda) are rapidly emerging as viable alternative treatment strategies for many chronic diseases and effectively use medicinal plant derived products for therapeutic benefits with wider margins of safety. Herbal drugs obtained from medicinal plants are used singly (monoherbal) or in combination (polyherbal) and have great potential as viable alternatives/adjuncts for allergic and immunological disorders. Modern scientific methods are being increasingly adopted to validate the effects of such agents used in the traditional systems of medicine. Translational research in medicine is a two-way street and aims at breaking down barriers between clinical and basic medical sciences to promote rapid transfer of knowledge from bench to bedside and vice versa. In pharmacological sciences and drug development, this concept is being utilized for accelerating the conversion of basic and/or clinical research findings to sustainable health care solutions. UNIM-352 is a polyherbal formulation, used in traditional Unani medicine for bronchial asthma and clinical and experimental studies were conducted to validate their observed effects. In the clinical study, UNIM-352 significantly enhanced the therapeutic effect of standard anti-asthma therapy as assessed lung function tests and symptomatology, as compared to the placebo group, indicating its efficacy as an adjunct therapy. It also reduced the incidences of adverse effects seen after conventional therapy. In the experimental study, UNIM-352 demonstrated differential degrees of anti-inflammatory, immunomodulatory and antioxidant effects in rats, by using well established biomarkers. The results indicate that this polyherbal agent, by virtue of its immunomodulatory and anti-inflammatory effects, could be used as an alternative/adjunct in the treatment of bronchial asthma. This study further highlights the importance of a translational approach in traditional systems of medicine and herbal drug research which could rationalize drug therapy of allergic/immunological disorders.

Biography

Arunabha Ray is the Director-Professor and Chair of the Department of Pharmacology at the Vallabhbhai Patel Chest Institute and Faculty of Medicine, University of Delhi, India. He has more than 37 years teaching and research experience in basic and clinical pharmacology and toxicology with specialization in Immunopharmacology. He has been the recipient of several awards and honors for research excellence. He has more than 150 research publications, author of several text and reference book chapters, Editor of 04 books in his areas of expertise and author of a textbook in pharmacology.

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