Main messages from Barcelona-Boston 2016

Author
Àlvar Agustí¹, Bartolomé Celli²

¹ Institut Respiratori. Hospital Clínic de Barcelona. Universitat de Barcelona. CIBERES. Barcelona, Spain
² Brigham and Women’s Hospital. Harvard Medical School. Boston, Massachusetts, USA

Correspondence
Àlvar Agustí
Institut Respiratori, Hospital Clínic de Barcelona.
Villarroel, 170. 08036 Barcelona, Spain.
E-mail: augusti@clinic.ub.es

Bartolomé Celli
Brigham and Women’s Hospital. Harvard Medical School.
75 Francis Street, Boston MA 02115, Massachusetts, USA
E-mail: bcelli@copdnet.org

The third edition of the Barcelona-Boston Conference will go down as a fine example of hypothesis generating science and evidence based approaches to the problems facing health practitioners dealing with patients with respiratory illnesses.

No better way to begin than to ask this question: have the significant resources spent in respiratory genetics research brought forth any benefits? This was addressed by Dr. David Lomas in a superb conference where he showed us that one of the first diseases where a genetic defect was identified is respiratory in nature, cystic fibrosis (CF). Not only did he tell us about the importance of this disease, but he demonstrated how research has improved its treatment, a fact that has resulted in the increase in survival that characterizes this disease today. Specifically he showed how genetic studies have identified the mutations responsible for the defect in the chloride channel characteristic of CF. Specifically the gene mutation F508 that has singled a subgroup of CF patients can be treated with medications designed to improve the CFTR protein and its function, thereby radically modifying disease progression in patients with CF. He also presented the latest advances in the genetics of alpha-1-antitrypsin deficiency, its importance, diagnosis, consequences and possible therapies including its replacement or modification in the actual molecule to prevent its aggregation, a feature thought crucial in the development of the clinical manifestation of this disease. Great reason for hope!

No less provocative was the conference by Dr. Manuel Cosio which lauded the recent efforts by international societies in developing groups of patients with respiratory illnesses. He highlighted the importance of physical, respiratory and rehabilitative therapy to help patients cope with their disease. She also pointed out the important problems for the patients. Dr. Polverino reviewed the therapeutic approaches to the problems facing health practitioners dealing with patients with respiratory illnesses.

Polverino told us that the natural course of bronchiectasis is punctuated by repeated exacerbations, usually of infectious origin that lead to antibiotic resistant bacteria such as pseudomonas aureginosa become established by antibiotic resistant bacteria such as pseudomonas aureginosa become established. He addressed from many angles. We were reminded how since the advent of CT scans, this now frequently diagnosed entity suffers from relative unrecognition and appreciation by the medical field. In fact, the price paid by the sufferers from bronchiectasis is important in terms of health care resources as well as in personal health status. Dr. Polverino also presented the latest advances in the genetics of alpha-1-antitrypsin deficiency, its importance, diagnosis, consequences and possible therapies including its replacement or modification in the actual molecule to prevent its aggregation, a feature thought crucial in the development of the clinical manifestation of this disease. Great reason for hope!

No less provocative was the conference by Dr. Manuel Cosio who showed how much benefit could come if we were to unravel the secrets that lie behind the fact that his description of the events that may help prevent COPD from occurring are based on observations related to an accurate control of the immune response during the inflammatory process associated with cigarette smoking. In those subjects where the response is abnormal, the generation of autoimmunity may be the final road that leads to COPD. However, to add to the unique concepts that Dr. Cosio developed is the fact that perhaps, in this attempt to develop an appropriate immune response, those subjects who “evade” COPD may actually be more prone to developing lung cancer, as is supported by the larger incidence of lung cancer in patients with less severe airflow limitation. This novel concept about COPD and cancer pathobiology is exciting and could alter how we direct research to prove or disprove these theories.

Dr. Miguel Divo also tweaked our imagination as he developed the concept that human beings and the diseases that affect them are complex and that the tools needed to characterize them have by necessity to be complex. In his field of research (COPD) he has begun to utilize Network System Analysis to understand the nature of the relationship amongst COPD, its co-morbidities and the clinical manifestations of the disease. The use of algorithms able to represent the multidimensional relationship of all of these variables, coupled with the generation of large biological throughput data in the world of “omics” should revolutionize how we interpret and organize diseases that affect humans. We are sure there is a lot more to come from this research.

From these conceptual and basic fields, we migrated to more practical issues: Amongst them the problem of bronchiectasis. One that Dr. Eva Polverino addressed from many angles. We were reminded how since the coming of CT scans, this new frequently diagnosed entity suffers from relative unrecognition and appreciation by the medical field. Indeed, the price paid by the sufferers from bronchiectasis is important in terms of health care resources as well as in personal health status. Dr. Polverino told us that the natural course of bronchiectasis is punctuated by repeated exacerbations, usually of infectious origin that lead to multiple antibiotics usage and in the end the colonization and infection by antibiotic resistant bacteria such as pseudomonas aureginosa become established. He also pointed out the recent efforts by international societies in developing groups aimed at joining forces to better study this huge medical problem.
The other three speakers centered their dissertations on the pharmacotherapy of airways diseases. Dr. Claus Vogelmeier first addressed the role of bronchodilators in COPD and brilliantly summarized for us the many trials that support their use in all stages of symptomatic COPD. Going from the basic premises of the pharmacological actions of the selective beta-2-agonist agents to the muscarinic receptor antagonists. He emphasized that biochemical modifications have resulted in longer-acting agents, capable of lasting 24 hours and how their use are associated with beneficial results in patient-centered outcomes. Whether to begin with one or two of them was part of his discussion and using case presentations, he developed his approach that seems very rational and appropriate.

On the other hand, Dr. Jorgen Vestbo addressed the rational use of inhaled corticosteroids. Its use has been the cornerstone in the treatment of asthma and in extension to patients with COPD. However, the inflammation of COPD is not exactly that of asthma and because the use of inhaled corticosteroids is associated with an increased risk of pneumonia, its routine use has come into question. After reviewing the large amount of data from different studies, Dr. Vestbo drew the conclusion that inhaled corticosteroids should never be used alone in patients with COPD. However, he did show that some patients do benefit from the association of inhaled corticosteroids and long-acting beta-2-agonists, especially if the patient has repeated exacerbations. He cautioned the attendees to watch for pneumonia in patients with underlying airway colonization and propensity for infections.

The third presenter in this section was Dr. David Singh, who reviewed the role of biologicals in the treatment of airways disease; theoretically asthma and COPD. Because the evidence on the effectiveness of biologicals centers primarily on asthma, this was the target of his presentation. There is no question that certain monoclonal antibodies such as those against IL-5 and its receptor and IL-13 have shown promise in the treatment of asthmatic patients who remain poorly controlled on optimal regimes based on inhaled corticosteroids, bronchodilators and leukotriene inhibitors. However, the specific biomarkers that could help identify those patients likely to respond to treatment with these agents remain somewhat elusive.

The impact of these presentations led the assistants to an active discussion that was never long enough to capture the range of observations from the audience. This was also true for the research abstracts that were presented by the young investigators. Over two different days topics ranging from the role of AGES (Active Glycation End Products) in the pathogenesis of idiopathic pulmonary fibrosis to the response to positive pressure in prevention of post-operative complications offered a vision of the wide spectrum of topics that encompasses our field of interest.

Dear all, with this fulfilling experience, we are looking forward to seeing you in the fourth edition next year.