Post-infectious bronchiolitis obliterans in children

Insights into post-infectious bronchiolitis obliterans in children

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New information contributing to our understanding of risk factors predisposing to bronchiolitis obliterans in children

Bronchiolitis obliterans (BO) is a rare form of chronic obstructive lung disease that follows an insult to the lower respiratory tract. It is characterised by inflammation and fibrosis of the terminal and respiratory bronchioles that lead to narrowing and/or complete obliteration of the airway lumen. Pathologically, two forms of BO are recognised, and these may be part of a continuum. Proliferative bronchiolitis is characterised by intraluminal exudates, whereas constrictive bronchiolitis is characterised by alterations in the walls of the bronchioles ranging from inflammation to fibrosis and, ultimately, to complete obliteration of the lumen. The histological findings of constrictive bronchiolitis are a common end point for many disorders that are associated with airway epithelial injury including allograft recipients (lung, heart-lung, and bone marrow), previous lower respiratory tract infection (adenovirus, influenza, parainfluenza, measles, respiratory syncytial virus, or Mycoplasma pneumoniae), collagen vascular disease (especially rheumatoid arthritis and Sjogren’s syndrome), toxic fume inhalation, chronic hypersensitiv- ity pneumonitis, drugs (such as penicillamine or cocaine), and Stevens-Johnson syndrome. With the exception of specialised centres where large numbers of paediatric lung, heart-lung, or bone marrow transplants are performed, post-infectious BO is generally the most common form of BO in children worldwide.

For unclear reasons, post-infectious BO seems to occur more frequently in the southern hemisphere.
Children, New Zealand, and Australia), but it is also found in other parts of the world. These children may play a role in that the prevalence of BO appears to be increased in Native Americans in Canada, and Polynesians in New Zealand, and Native Koreans. A recent study found that HLA-DQB1*0302, an antigen highly represented in Amerindians, was increased in children with BO in Argentina.

In this issue of Thorax Colom et al. present the first systematic study examining the risk factors associated with the development of BO in children. Given the relatively high incidence of BO in Argentina, the authors have accumulated extensive experience with this disorder and have a unique opportunity to study this relatively rare disease. Although the association between adenovirus infection and BO in children has been well recognised, this study convincingly shows that adenovirus is by far the most common cause of post-infectious BO. The additional finding by far the most common cause of post-infectious BO. The additional finding convincingly shows that adenovirus is by far the most common cause of post-infectious BO.

Further research is needed to ascertain the mechanisms by which adenovirus—more than other respiratory pathogens—contributes to the development of BO. Additional investigations should be done to define more clearly the specific value of clinical presentation, pulmonary function testing, high resolution computed tomography, and lung biopsy in the diagnosis of BO in children. Surrogate markers of disease activity need to be developed. For example, preliminary studies suggest that KL-6, a protein expressed by activated pulmonary epithelial cells, is increased in the serum of lung transplant patients who develop BO. Whether KL-6 would be a useful marker in post-infectious BO should be evaluated. Finally, systematic studies are needed to determine if treatments such as infliximab and azithromycin, suggested for other forms of BO, are effective in improving the outcome of patients with post-infectious BO.

REFERENCES