Understanding severe & uncontrolled asthma

Asthma is one of the most common chronic diseases in the world. It is a long-term condition of the airways that makes breathing difficult. Currently 315 million individuals suffer from asthma worldwide, including an estimated 30 million people in Europe and 17.7 million adults in the US.

Asthma prevalence continues to increase, and it is estimated that by 2020 asthma will likely affect as many as 400 million people.

Most people with asthma can manage their symptoms. However, up to 10% of asthma cases are severe, of which approximately 40% are uncontrolled.

The burden of uncontrolled asthma

Asthma is a complex and potentially life-threatening disease for those patients who remain uncontrolled. Patients with uncontrolled asthma are significantly more likely to suffer from poor outcomes and medical emergencies. Severe, uncontrolled asthma is associated with frequent exacerbations and an eight times higher risk of death than severe asthma. The number of hospital stays per year is about 10 times higher for individuals with uncontrolled asthma than those with controlled disease.

Uncontrolled asthma also has a significant impact on the everyday lives of patients. Uncontrolled asthma results in a significant increase in debilitating symptoms, including night-time symptoms and impact on everyday activities due to shortness of breath, which could require patients to plan when and where they can travel. Normal daily activities are affected more than once per week for 91% of uncontrolled versus 0% of controlled asthma patients.

The oral corticosteroids challenge

Patients with uncontrolled asthma require considerably more medication, including rescue inhaler and oral corticosteroids. A 2014 report found that 63% of patients with uncontrolled asthma used oral corticosteroids more than once per week within the past year, compared to 23% of patients whose asthma was controlled. The higher doses of medication also result in more side effects, such as depression, sleep disruption, weight gain and skin conditions. These side effects increase the already substantial burden of severe, uncontrolled asthma and its impact on QoL.
Growing economic burden

There is a significant physical and socio-economic burden with asthma related health costs. Asthma results in an estimated 346,000 deaths and 22 million disability-adjusted life years lost each year worldwide. Adults and children with uncontrolled asthma, as well as adults who are caregivers of children with uncontrolled asthma, lose a considerable amount of time at work and in education, with twice as many days off than controlled asthma.

The economic burden of asthma is high, with annual direct costs in the US estimated to be approximately $50 billion, mostly related to medication, office-based visits and hospitalisation. In Europe, the cost of asthma care is estimated to be £18 billion per year, with lost productivity accounting for almost £10 billion of this cost.

Patients with the poorest control account for the greatest burden of disease. Patients with uncontrolled asthma are 27% more likely to use emergency services and 20% more likely to be hospitalised than those with controlled disease. Consequently, while severe asthma accounts for 10 percent of patients; severe asthma accounts for 50% of the economic burden.

The role of eosinophils in asthma

Eosinophils have long been recognised as strongly associated with asthma and poor outcomes in a significant proportion of patients. Eosinophils are white blood cells that drive airway inflammation and hyper-responsiveness, which respond to stimulus by allergens or pollutants in the airway.

Eosinophils can play an important role in the inflammatory response, and reducing eosinophils may be beneficial across the range of asthma outcomes, including lung function, symptoms, exacerbations and hospitalisations. The greater the control of eosinophils, the greater the potential benefit, making eosinophils an important therapeutic target.

An important measure of lung function is FEV1, the volume of air that can be forced out in one second after taking a deep breath. There is a strong association between greater reductions in eosinophil levels and improvements in FEV1.

Correlation between changes in sputum eosinophil and lung function

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