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Pulmonary hyperinflation a clinical overview.

Review article

Gibson GJ. Eur Respir J. 1996.

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Abstract

Pulmonary hyperinflation is usually defined as an abnormal increase in functional residual capacity, i.e. lung volume at the end of tidal expiration. As such, it is virtually universal in patients with symptomatic diffuse airway obstruction. Hyperinflation inferred from a standard chest radiograph implies an increase in total lung capacity. The relaxation volume of the respiratory system (V_r) increases in patients with chronic airway disease as a result of changes in the elastic properties of the lungs and chest wall. In addition, a variable degree of dynamic hyperinflation may be present. This results from the onset of inspiration before lung volume has fallen to V_r. Dynamic hyperinflation is frequently present at rest in patients with moderate-to-severe airway obstruction, and it increases further on exercise, thereby increasing the mechanical load on the inspiratory muscles and at the same time reducing their mechanical advantage. Important clinical consequences and associations of hyperinflation include: distortions of chest wall motion; impaired inspiratory muscle function; increased oxygen cost of breathing; greater likelihood of hypercapnia; impaired exercise performance; and greater severity of breathlessness. The symptomatic improvement after treatment with a bronchodilator may be due, in part, to lessening of hyperinflation.

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