Format: Abstract

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Imaging of respiratory muscles in neuromuscular disease: A review.

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Abstract

Respiratory muscle weakness frequently occurs in patients with neuromuscular disease. Measuring respiratory function with standard pulmonary function tests provides information about the contribution of all respiratory muscles, the lungs and airways. Imaging potentially enables the study of different respiratory muscles, including the diaphragm, separately. In this review, we provide an overview of imaging techniques used to study respiratory muscles in neuromuscular disease. We identified 26 studies which included a total of 573 patients with neuromuscular disease. Imaging of respiratory muscles was divided into static and dynamic techniques. Static techniques comprise chest radiography, B-mode (brightness mode) ultrasound, CT and MRI, and are used to assess the position and thickness of the diaphragm and the other respiratory muscles. Dynamic techniques include fluoroscopy, M-mode (motion mode) ultrasound and MRI, used to assess diaphragm motion in one or more directions. We discuss how these imaging techniques relate with spirometric values and whether these can be used to study the contribution of the different respiratory muscles in patients with neuromuscular disease.

KEYWORDS: Diaphragm; Imaging; MRI; Neuromuscular disease; Pulmonary function; Respiratory muscles

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