

## Chest MRI in patients with cystic fibrosis: a radiation-free method

We read with great interest the well written manuscript by Mott *et al*,<sup>1</sup> which reported their experience with CT for the detection of structural lung disease in infants and young children with cystic fibrosis (CF). They emphasised the importance of an early diagnosis because disease progression occurs over the course of 1 year in most cases. However, we would like to discuss some aspects of imaging studies in these patients.

CT is recognised as the gold standard for the assessment of morphological changes in the airways and lung parenchyma,<sup>2</sup> and is currently the only reliable imaging modality for the diagnosis and monitoring of early CF lung disease.<sup>3</sup> However, compared with other methods, chest CT exposes patients to much higher radiation doses.<sup>4</sup> Considering the necessity of lifelong repeated imaging studies in

patients with CF, the cumulative radiation dose reached with CT has restricted its use, especially for short-term follow-up purposes.<sup>4</sup>

MRI has therefore been established as a radiation-free alternative to CT for the assessment of lung disease in patients with CF. In addition to morphological imaging, this modality enables the visualisation and regional measurement of functional qualities of the lung. MRI of the chest was proposed as a potential imaging alternative in patients with CF in the late 1980s, although at that time, MRI technology was not capable of producing results comparable to those of CT. In the last decade, new technologies and strategies have been implemented to overcome the inherent difficulties of lung MRI. The introduction of parallel imaging in clinical practice has enabled more rapid image acquisition, substantially improving temporal and/or spatial resolution.<sup>5</sup> Previous studies have proven that MRI is comparable to CT for the detection of morphological changes in the lungs of patients with CF, without requiring the use of ionising radiation. Furthermore, MRI was shown to be superior to CT for the assessment of functional changes in the lung.<sup>5</sup> In this setting, we would thus like to highlight the importance of MRI in monitoring lung abnormalities in patients with CF.

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