

Table S1

First authors, year of publication	Study design	Study population (period, location)	Inclusion criteria	Exclusion criteria	Number eligible patients	Number included patients	Number ILD patients	ILD definition	Imaging technique	MRI sequences
Hatabu H, et al. 1999	Case-control	Not-reported	Not-reported	Not-reported	Not-reported	25	3	pulmonary hemorrhage, bronchiectasis and pulmonary edema	MR	HASTE
Hekimoglu K et al. 2009	Prospective	January 2007- July 2008	Coal miners for 15-25 years, pulmonary mass lesions 25-50 mm	Not-reported	23	20	20	Progressive massive fibrosis	CT-MR	HASTE, VIBE
Pinal-Fernandez I et al. 2016	Retrospective	Vall d'Hebron Hospital	Systemic Sclerosis with multidisciplinary diagnosis of ILD	No evidence of heart failure	Not-reported	18	18	NSIP UIP	CT-MR	HASTE
Rajaram S et al. 2012	Retrospective	January 2008-March 2010	Pulmonary Hypertension with CT and MRI in 48 hours	Not-reported	236	224	46	UIP NSIP	CT-MR	bSSFP
Ohno Y et al. 2013	Prospective	Kobe University Hospital	Suspected chest disease on chest X-ray or CT	Age < 18 years Contraindication to MRI Pregnancy	93	85	19	UIP NSIP	CT-MR	UTE
Molinari F. et al 2007	Prospective	Not-reported	ILD	Not-reported	22	22	10	UIP, NSIP, sarcoidosis	MR	OE-MRI

Ohno et al 2014	Case-control	Kobe University Hospital January 2008 March 2012	CTD	Failed to O2 enhancement	53	45	36	CTD-ILD	CT-MR	OE-MRI
Lavelle LP et al. 2017	Case-control	Not-reported	IPF	Acute chest infection or acute exacerbation	32	32	20	IPF	CT-MR	gadolinium-enhanced MRI
Mirsadraee S et al. 2016	Case-control	University of Edimburg	IPF	MRI contraindication, critical illness, patients receiving ventilator support, and respiratory comorbidities	17	17	7	IPF	CT-MR	gadolinium-enhanced MRI
King MA et al. 1996	Case-control	March December 1993	UIP	Not-reported	10	10	10	UIP	CT-MR	gadolinium-enhanced MRI
Yi CA et al 2008	Prospective	University of Seoul, November 2005 July 2006	ILD	Patients with other than UIP or NSIP at biopsy	59	26	26	UIP NSIP	MR	gadolinium-enhanced MRI
Lutterbey G et al. 2006	Prospective	Not-reported	ILD, all patients showed an increase of respiratory complaints	Not-reported	21	21	21	UIP NSIP	CT-MR	T2-FSE
Buzan MTA et al. 2015	Prospective	December 2013- February 2014	ILD	Not-reported	12	12	12	UIP NSIP	CT-MR	T2-FSE
Stadler A et al. 2007	Prospective	Not-reported	Patients with emphysema	Not-reported	25	14	14	UIP NSIP	MR	FLASH sequence for T1 mapping

			and fibrosis							
Ohno Y et al. 2013	Prospective	Not-reported	Patients with ILD secondary to connective tissue diseases and normal subjects	Not-reported	26	16	16	UIP NSIP	CT-MR	UTE
<u>Ohno Y et al. 2015</u>	Prospective	Not-reported	Suspected chest disease on radiograph or CT	Age less than 18 years old, pregnancy or breast feeding and contraindication to MRI	93	85	19	UIP NSIP	CT-MR	UTE
Barreto MM et al. 2013	Review	Not-reported	Several parenchymal lung diseases	Not-reported	Not-reported	Not-reported	Not-reported	UIP NSIP	CT-MR	T1 and T1 weighted sequences
Sergiacomi G et al. 2010	Case-control	Not-reported	Emphysema and pulmonary fibrosis at CT	Collagen vascular diseases and cardiac dysfunction	31	31	18	UIP NSIP	Echocardiography- CT-MR	3D T1 TSE
Gaeta M et al. 2000	Prospective	Not reported	Definitive diagnosis obtained by lung biopsy	Not reported	25	25	5	UIP NSIP	CT-MR	gadolinium-enhanced MRI
Kato S et al. 2015	Case-control	June 2009- October 2013	ILD	Patients with cardiomyopathy	107	100	76	UIP NSIP	Echocardiography- ILD-MR	SSFP
Matsumoto S et al. 1998	Case-report	Not-reported	Progressive massive fibrosis	Not-reported	1	1	1	NSIP	CXR-CT- MR	T1 and T1 weighted sequences
Hochegger B et al. 2012	Review	Not-reported	Several parenchymal lung diseases	Not-reported	Not-reported	Not-reported	Not-reported	UIP NSIP	CT-MR	STIR, T1- GRE and T2 FSE

Biederer J et al. 2002	Prospective	Not-reported	Several parenchyma lung diseases	Not-reported	25	25	5	UIP NSIP	CT-MR	3D GRE T1 weighted sequence
Tsuchiya N et al. 2016	Prospective	July 2007-July 2011	ILD	Emphysema	30	27	27	UIP NSIP	CT-MR	Phase contrast

Table 1. Description of studies. ILD: interstitial lung disease. MRI: Magnetic Resonance Imaging. MR: Magnetic Resonance. HASTE: half-Fourier acquired single turbo spin-echo. CT: Computed tomography. VIBE: Volumetric interpolated breath-hold examination. NSIP: non-specific interstitial pneumonia. UIP: usual interstitial pneumonia. bSSFP: balanced steady state free precession UTE: ultrashort echo time. OE-MRI: oxygen-enhanced-MRI. CTD: connective tissue disease. IPF: Idiopathic pulmonary fibrosis. FSE: fast spin echo. FLASH: Fast low angle shot. TSE: turbo spin echo. CXR: chest X-Ray. STIR: Short tau inversion recovery. GRE: gradient echo.

Sequence	Manufacturer Acronyms	Typical Contrast	Average Acquisition Time (for entire chest, otherwise stated)	Spatial Resolution Scan Plane	Temporal Resolution	Scan Parameters	Field Strength B0
Ventilation (INSP - EXP)							
3D Rapid Acquisition Spoiled Gradient Echo	FSPGR (GE) FLASH (SIEMENS) FFE (PHILIPS)	T1-weighted Bright Blood	In Inspiration and Expiration ≈ 19 and 13 sec respectively	EXP FOV = 360 x 324 mm INSP FOV = 360 x 252 mm Thickness = 2 mm (insp-exp) Plane = Sagittal (insp-exp)	TempRes = High	TR ≈ 1.7 ms TE = minimum (≈ 0.8 ms) FA = 2 deg BW = ±111.11 KHz Matrix 180 x 180	3.0T
Morphology							
2D Radial Multi-Shot Fast Spin Echo	PROPELLER (GE) BLADE (SIEMENS) MultiVane (PHILIPS)	T2-weighted Bright Blood	End-expiratory with Respiratory Triggering ≈ 3 - 7 min According respiratory pace and pattern	FOV = 360 mm Thickness = 5 mm Plane = Axial	TempRes = Mid	TR ≈ 4000 sec TE = 92 ms FA = 103 deg + FAT Saturation BW = ±62.5 KHz Matrix	3.0T

3D Variable Flip Angle Fast Spin Echo	CUBE (GE) SPACE (SIEMENS) VISTA (PHILIPS)	T2- weighted Black blood	Free Breathing (Navigator) 4 - 9 min According respiratory pace and pattern	FOV = 300 mm Thickness = 2 mm + ZIP2 Plane = Coronal	TempRes = Mid	TR = according respiratory rate (2-5) TE ≈ 60 ms FA = 90 deg / Variable Flip Train BW = ± 125.0 KHz Echo train length = 160 + FAT Saturation Matrix 128 x 128	3.0T
3D Ultrashort TE Gradient Echo	UTE - (GE) UTE/PETRA (Siemens) UTE (Philips)	PD/T1 weighted Dependin g on readout Flip Angle chosen	Free Breathing ≈ 7 - 10 minutes	FOV = 360 mm Thickness = 1 - 5 mm Plane = Coronal	TempRes = Mid	TR ≈ 170 TE ≈ 0.01 ms	3.0T
DWI							
2D Single-Shot Echo- Planar Imaging (EPI) EPI SE Twice Refocused	DWI dSE (GE) TRSE DWI (Siemens) Bipolar DWI (Philips)	T2- weigh ted Perfus ion and Diffus ion weigh ted, Black Blood	Free Breathing (Navigator) ≈ 5 - 7 minutes	FOV = 420 x 210 mm Thickness = 6 mm Plane = Axial	TempRes = Very High	TR ≈ 4000 TE ≈ 70 FA = 90 deg b = 0, 50, 100, 150, 200, 400, 600, 800 BW = ± 250.0 KHz + Water Excitation Matrix = 64 x 128	3.0T
Quantitative Mapping							
3D Rapid Acquisition Spoiled Gradient Echo Multi Echo	FSPGR (GE)	T2* weighted R2* Mapping	In Inspiration and Expiration ≈ 10 and 9 sec respectively	FOV = 310 mm Thickness = 4.8 mm Plane = Sagittal	TempRes = High	TR = 3.8 ms TE = 0.65,1.16,1.68,2.19,2. 70 FA= 3 deg BW = ± 166.67 KHz Matrix = 64 x 64	3.0T

T2* Map							
2D Rapid Acquisition Spoiled Gradient Echo	FSPGR (GE) FLASH (SIEMENS) FFE (PHILIPS)	B1 Mapping	Free Breathing (Navigator) ≈ 1:23 min	FOV = 360 mm Thickness = 15 mm Plane = Sagittal	TempRes = High	TE = 12 ms FA = 10 deg BW = ± 15.63 KHz Matrix = 64 x 64	3.0T
3D Rapid Acquisition Spoiled Gradient Echo T1 Map	LAVA (GE) VIBE (SIEMENS) THRIVE (PHILIPS)	T1 Mapping	Free Breathing (Navigator) ≈ 1:30 min	FOV = 360 mm Thickness = 2.6 mm Plane = Sagittal	TempRes = High	TR ≈ 2.1 ms TE = 0.9 ms FA = 2, 4, 8, 12 deg BW = ± 125.0 KHz Matrix = 128 x 128	3.0T
Gadolinium Enhanced							
3D Rapid Acquisition Spoiled Gradient Echo Pre-contrast	LAVA (GE) VIBE (SIEMENS) THRIVE (PHILIPS)	T1-weighted	Free-breathing (Navigator) ≈ 2:30 min	FOV = 300 mm Thickness = 2 mm Isotropic voxel, as low as 8 mm ³ Plane = Coronal	TempRes = High	TR = 2.5 ms TE = 1.1 ms FA = 12 deg BW = ± 125.0 KHz Matrix = 150 x 150	3.0T
3D Rapid Acquisition Spoiled Gradient Echo Post-contrast (5, 10, 20 min)	LAVA (GE) VIBE (SIEMENS) THRIVE (PHILIPS)	T1-weighted, Bright Blood after contrast injection Bright blood	Free-breathing (Navigator) ≈ 2:30 min	FOV = 300 mm Thickness = 2 mm Isotropic voxel, as low as 8 mm ³ Plane = Coronal	TempRes = High	TR = 2.5 ms TE = 1.1 ms FA = 12 deg BW = ± 125.0 KHz Matrix = 150 x 150	3.0T

Table S2. Imaging Protocols for ventilation, inflammation, perfusion and structural MRI in ILD patients (M-ILD)

