

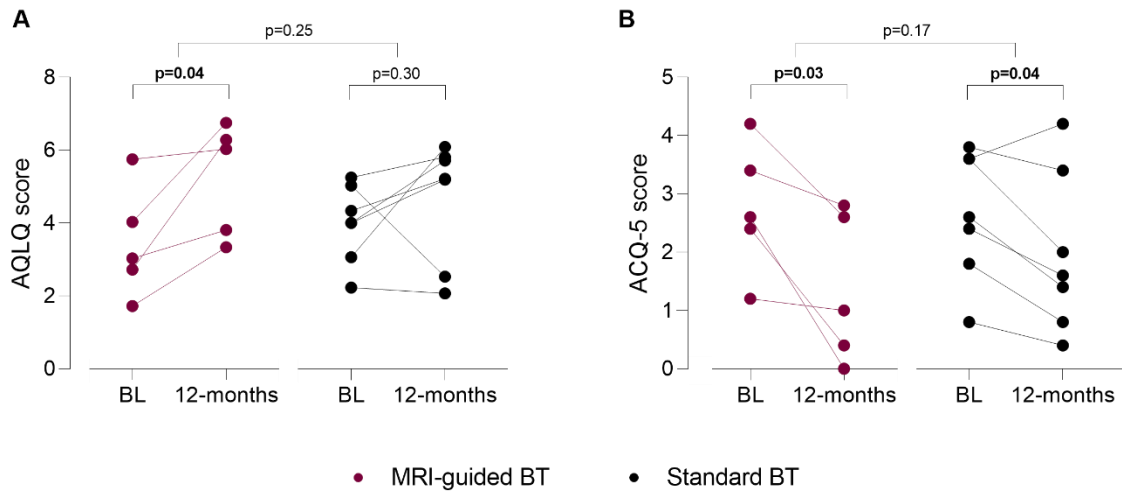
## ONLINE SUPPLEMENT

### **Bronchial thermoplasty guided by hyperpolarized gas MRI in adults with severe asthma: A one-year pilot randomized trial**

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**Figure S1- AQLQ (A) and ACQ-5 scores (B) at baseline and 12-months following MRI-guided (*maroon*) and standard (*black*) bronchial thermoplasty.**



AQLQ=Asthma Quality of Life Questionnaire; ACQ-5=five-item Asthma Control

Questionnaire; BL=baseline; BT=bronchial thermoplasty.

**Table S1- Baseline demographic and clinical characteristics for intent-to-treat population**

	<b>MRI-guided BT</b> (n=6)	<b>Standard BT</b> (n=8)	<b>Significance of Difference* (p)</b>
Age yrs	46±13	45±14	0.89
Female sex n (%)	5 (83)	5 (63)	N.D.
BMI kg/m <sup>2</sup>	33±8	29±4	0.32
Smoking history n (%)	1 (17)	2 (28)	N.D.
Blood eosinophils (x10 <sup>9</sup> /L) <sup>†</sup>	0.3 (0.0-0.6)	0.2 (0.0-0.7)	0.77
Sputum eosinophils % <sup>†</sup>	1.3 (0.0-11.3) <sup>§</sup>	0.0 (0.0-4.3) <sup>‡</sup>	0.36
ACQ-5 Score	3.0±1.1	2.7±1.0	0.69
AQLQ Score	3.4±1.4	3.8±1.1	0.56
FEV <sub>1</sub> Pre-BD % <sub>pred</sub>	43±8	76±29	<b>0.02</b>
FEV <sub>1</sub> Post-BD % <sub>pred</sub>	65±12	85±29	0.14
Reversibility of FEV <sub>1</sub> % <sup>†</sup>	62 (6-94)	12 (-3-35)	<b>0.01</b>
FEV <sub>1</sub> /FVC Post-BD %	63±12	71±18	0.36
<b>Asthma Medications</b>			
ICS dose µg/day <sup>†‡</sup>	1750 (1000-4000)	1250 (500-2000)	0.20
OCS dose mg/day <sup>†</sup>	0 (0-20)	0 (0-25)	>0.99
OCS dependent n (%)	2 (33)	3 (38)	N.D.
Monoclonal antibody n (%)	3 (50)	2 (25)	N.D.
LAMA n (%)	3 (50)	4 (50)	N.D.
LTRA n (%)	3 (50)	4 (50)	N.D.

Values are mean ± standard deviation except when indicated otherwise.

N.D.=not-determined; BMI=body mass index; ACQ-5=five-item asthma control questionnaire; AQLQ=asthma quality of life questionnaire; FEV<sub>1</sub>=forced expiratory volume in one second; BD=bronchodilator; FVC=forced vital capacity; ICS=inhaled corticosteroid; OCS=oral corticosteroid; LAMA=long-acting muscarinic antagonist; LTRA=leukotriene receptor antagonist.

\*Significance of difference (p<0.05) between groups determined using an unpaired t-test for parametric data or Mann-Whitney test for nonparametric data; <sup>†</sup>Median (minimum - maximum); <sup>‡</sup>fluticasone or equivalent; <sup>§</sup>n=5; <sup>‡</sup>n=7.

**Table S2- Hospitalizations for respiratory adverse events following bronchial thermoplasty**

Participant	Treatment Group	AE description	Days since BT	Duration of hospitalization (d)	Treatment of AE while in hospital
<i><b>Intervention period plus 6 weeks</b></i>					
<b>006</b>	MRI-guided BT	Dyspnea, fatigue, wheeze, productive cough, pleuritic chest pain; airway wall edema, mucus plugging, consolidation on CT	7 days after BT#1	12	Antibiotic + oral prednisone + chest physiotherapy + bronchoscopy washings + morphine
<b>016</b>	Standard BT	Cough, wheeze, bronchospasm, respiratory distress; opacities on CT	0 days after BT#2	5	High doses of bronchodilators + intravenous methyl prednisone + oral prednisone + lorazepam
		Cough, wheeze, chest tightness, bronchospasm, respiratory distress; opacities on CT	0 days after BT#3	21	High doses of bronchodilators + antibiotic + oral prednisone + non-invasive ventilation (BiPAP) + magnesium sulfate + ketamine + theophylline + Ativan
<b>023</b>	MRI-guided BT	Febrile, purulent sputum (yellow-green), consolidation/atelectasis on x-ray	0 days after BT#1	3	Antibiotic + oral prednisone
<i><b>Post-intervention period (6 weeks – 12 months)</b></i>					
<b>012</b>	MRI-guided BT	Shortness of breath	317 days after BT#1	5	High doses of bronchodilators + magnesium sulfate + intravenous methyl prednisone + oral prednisone
<b>013</b>	Standard BT	Asthma exacerbation	244 days after BT#3	3	Intubated and ventilated (2 days), nebulized salbutamol and atrovent, advair, intravenous methyl prednisone
		Asthma exacerbation	348 days after BT#3	4	Intubated and ventilated (12 hours), nebulized salbutamol and atrovent, advair, intravenous methyl prednisone
<b>016</b>	Standard BT	Respiratory distress	175 days after BT#3	4	High doses of bronchodilators + oral prednisone + non-invasive ventilation (BiPAP) + tamiflu
		Shortness of breath	350 days after BT#3	4	High doses of bronchodilators + oral prednisone

AE=adverse event; BT=bronchial thermoplasty.