

Annual RAPSODI report

Registry of adult patients with severe asthma for optimal disease management

28th of February, 2018

	AMC	SFG	MCL
Demographics			
Number of patients, n (%)	98	20	20
Age, mean (SD)	54.3 (14)	45.4 (15.8)	50 (13.6)
Gender, n (%) female	47 (48)	16 (80)	14 (70)
BMI, mean (SD)	28.5 (5.4)	27.9 (4.2)	28.2 (6.0)
Ethnicity, n (%) caucasian	78 (79.6)	19 (95)	20 (100)
Smoking status, n (%)			
- never	55 (54.5)	13 (65)	13 (65)
- ex-smoker	43 (43.9)	6 (30)	7 (35)
- current smoker	0	1 (5)	0
Number of pack years, median (IQR)*	10.5 (5.8-21.3)	9.5 (3.5-12.5)	7 (2.3-20.3)
Adult onset asthma, n (%)	65 (66.3)	10 (50)	10 (50)
- post-menopause	4 (8.5)	0	2 (14.3)
Ever ICU admission, n (%)	20 (19.8)	3 (15)	0
- intubation	11	0	0
Pulmonary rehabilitation program, n (%)			
- sea level (Heideheuvel)	28 (27.7)	4 (20)	3 (16)
- high altitude (Davos)	13 (13.3)	5 (25)	4 (20)
Bronchial thermoplasty, n (%)	2 (2.0)	1 (5.0)	0

BMI=body mass index, IQR=interquartile range, SD=standard deviation

*among the ex- and current smokers

Lung function data			
FEV1, pre-bronchodilator in %, mean (SD) - missing, n (%)	77 (23.9) 0	76.5 (23.1) 0	85.4 (18.5) 1
FEV1, pre-bronchodilator in L, mean (SD) - missing, n (%)	2.45 (0.86) 1	2.12 (0.87) 4	2.71 (0.74) 1
FEV1, post-bronchodilator in %, mean (SD) - missing, n (%)	81.2 (22.6) 27	78.5 (2.1) 18	91.4 (19.4) 6
FEV1, post-bronchodilator in L, mean (SD) - missing, n (%)	2.55 (0.91) 27	2.98 (0.71) 18	2.88 (0.71) 6
FVC, pre-bronchodilator in %, mean (SD) - missing, n (%)	97.6 (23.1) 0	92.5 (20.7) 0	107.6 (20.1) 1
FVC, pre-bronchodilator in L, mean (SD) - missing, n (%)	3.75 (1.1) 1	3.06 (1.0) 4	4.07 (1.0) 1
FVC, post-bronchodilator in %, mean (SD) - missing, n (%)	102.6 (16) 27	89.5 (2.1) 18	109.6 (21.4) 6
FVC, post-bronchodilator in L, mean (SD) - missing, n (%)	4.01 (1.1) 27	3.99 (0.93) 18	3.97 (0.98) 6
CO-diffusion capacity, percentage of predicted, median (IQR)	91.5 (81-104)	102 (82-109)	128.5 (114-158)
Metacholinetest, n (%)			
- positive	15 (15.3)	4 (20)	7 (35)
- negative	6 (5.9)	0	1 (5)
- test not performed	76 (77.6)	16 (80)	12 (60)
FeNO in ppb, median (IQR) -missing, n (%)	31 (19-46) 8	19 (11-36) 0	31 (20-46) 1

CO=carbon monoxide, FeNO=fractional exhaled nitric oxide, FEV1=forced expiratory volume in 1 second

Laboratory measurements			
Leukocytes x10⁹/L, mean (SD)	9.3 (2.3)	9.2 (3.5)	8.8 (2.5)
-missing, n (%)	0	0	1
Neutrophils x10⁹/L, mean (SD)	6.2 (2.2)	5.5 (3.5)	5.5 (2.3)
-missing, n (%)	4	5	1
Eosinophils x10⁹/L, median (IQR)	0.33 (0.12-0.59)	0.10 (0.04-0.16)	0.30 (0.20-0.55)
-missing, n (%)	1	7	3
Highest eosinophils ever x10⁹/L, median (IQR)	0.72 (0.45-1.04)	0.50 (0.18-2.60)	0.45 (0.23-0.88)
- missing	1	7	4
Measurement of allergen specific IgE, n (yes)			
- yes, positive	34 (34.7)	12 (60)	14 (70)
- yes, negative	46 (46.9)	8 (40)	3 (15)
- no	18 (18.4)	0	3 (15)
Measurement of aspergillus antigens, n (yes)			
- yes, positive	13 (13.3)	4 (20)	0
- yes, negative	35 (35.7)	11 (55)	3 (15)
- no	49 (50.0)	5 (25)	17 (85)
Measurement of food allergies, n (yes)			
- yes, positive	5 (5.1)	1 (5)	2 (10)
- yes, negative	9 (9.2)	3 (15)	3 (15)
- no	82 (82.7)	16 (80)	15 (75)

Imaging			
Chest X-ray performed, n (%) yes	98 (100)	20 (100)	20 (100)
Chest CT-scan performed, n (%) yes	63 (64.3)	13 (65)	11 (55)
DEXA-scan			
- pathological findings	12 (11.9)	1 (5.0)	2 (10.0)
- no pathological findings	13 (12.9)	0	5 (25)
- test not performed	76 (75.2)	19 (95)	13 (65)
Bronchoscopy performed, n (%) yes	36 (36.7)	1 (5.0)	1 (5.0)

Medication			
Education on inhalation technique, n (%) yes	78 (79.6)	18 (90)	19 (95)
Use of reliever medication, n (%)			
- SABA and/or SAMA	70 (89.7)	6 (30)	14 (70)
- SABA/SAMA or SABA/LAMA	14 (14.7)	7 (35)	2 (10)
ICS single inhaler only, n (%)	7 (7.4)	2 (10)	2 (10)
ICS single inhaler + LABA, n (%)	12 (12.2)	8 (40)	5 (25)
ICS/LABA combination inhaler only, n (%)	14 (14.7)	7 (35)	5 (25)
ICS/LABA combination inhaler + ICS single inhaler, n (%)	48 (49)	0	4 (16)
LAMA, n (%)	27 (27.6)	13 (65)	4 (20)
LAMA/LABA combination inhaler, n (%)	2 (2)	0	0
Oral corticosteroids maintenance therapy, n (%) yes	65 (66.3)	4 (20)	4 (20)
- dosage in mg/day, median (IQR)	10 (7.5-20)	5 (3.5-16.3)	3.8 (2.5-16.3)
Biologicals at baseline, n (%)			
- omalizumab	7 (7.1)	6 (30)	9 (45)
- mepolizumab	79 (80.6)	11 (55)	9 (45)
- reslizumab	11 (11.2)	0	0

ICS=inhaled corticosteroids, LABA=long-acting β_2 adrenergic receptor agonist, LAMA= long-acting muscarinic receptor antagonist, SABA=short-acting β_2 adrenergic receptor agonist, SAMA=short- muscarinic receptor antagonists

Comorbidity, n (%) yes			
Atopic dermatitis	17 (16.8)	2 (10)	2 (10)
Allergic rhinoconjunctivitis	18 (17.8)	1 (5)	0
Chronic rhinosinusitis	68 (67.3)	15 (75)	14 (70)
Nasal polyps	56 (55.4)	3 (15)	6 (30)
Aspirin hypersensitivity	20 (19.8)	2 (10)	3 (15)
Vocal cord dysfunction	2 (20)	3 (15)	0
Hyperventilation/anxiety disorder	4 (4)	2 (10)	2 (10)
Depression disorder	19 (18.8)	5 (25)	6 (30)
Gastroesophageal reflux	28 (27.7)	4 (20)	1 (5)
Frequent (>2/year) respiratory infections treated with antibiotics	33 (32.7)	10 (50)	0
Bronchiectasis	17 (16.8)	6 (30)	1 (5)
Eosinophilic granulomatosis polyangiitis	4 (4)	0	0
Eosinophilic pneumonia	2 (2)	0	0
Allergic bronchopulmonary aspergillosis	1 (1)	1 (5)	0
Chronic congestive heart failure	1 (1)	0	0
Obstructive sleep apnea syndrome	6 (5.9)	2 (10)	1 (5)

Patient reported data	AMC	MCL	SFG
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Asthma control questionnaire (ACQ) score, mean (SD)			
0-3 months follow-up - number of cases	2.09 (1.3) 95	1.39 (0.8) 17	2.28 (1.3) 14
3-6 months follow-up - number of cases	1.97 (1.3) 54	1.36 (1.1) 12	1.81 (1.3) 7
6-9 months follow-up - number of cases	1.47 (1.0) 41	1.60 (1.2) 4	0.78 (0.7) 3
9-12 months follow-up - number of cases	1.53 (1.0) 30	1.69 (0.4) 4	2.25 (0.8) 2
12-15 months follow-up - number of cases	1.59 (0.9) 15	1.67 (0.7) 4	-

Asthma quality of life questionnaire (AQLQ) score, mean (SD)			
0-3 months follow-up - number of cases	4.84 (1.1) 88	5.78 (0.8) 17	4.66 (1.3) 13
3-6 months follow-up - number of cases	5.17 (1.2) 43	5.63 (1.1) 11	5.23 (1.2) 7
6-9 months follow-up - number of cases	5.61 (1.1) 35	5.40 (1.0) 5	5.93 (0.67) 3
9-12 months follow-up - number of cases	5.31 (1.2) 29	5.07 (1.1) 4	4.19 (0.4) 2
12-15 months follow-up - number of cases	5.05 (1.1) 13	5.67 (0.7) 4	-

Healthcare utilization questionnaire at baseline	N=95	N=18	N=15
Course or doubling of the daily dosage of oral corticosteroids , n (%) yes	53 (55.8)	6 (33.3)	9 (60)
Contact with general practitioner, n (%) yes			
- by phone	33 (34.7)	1 (5.6)	4 (26.7)
- visit	31 (32.6)	0	3 (20)
Contact with pulmonologist, n (%) yes	87 (91.6)	12 (66.7)	13 (86.7)
Visit to emergency department, n (%) yes	15 (15.8)	2 (11.1)	4 (26.7)
Hospital admission, n (%) yes	9 (9.5)	1 (5.6)	5 (33.3)
- number of admission days, median (IQR)	9.5 (3-13)	9	8 (3-12)

Work productivity and activity impairment (WPAI) at baseline	N=93	N=18	N=14
Currently employed, n (%)	52 (47.7)	10 (55.6)	4 (28.6)
Percentage of work time missed due to health, median (IQR)	0 (0-19)	0 (0-20)	0 (0-0)
Percentage of impairment while working due to health, median (IQR)	30 (0-63)	15 (2.5-55)	60 (40-40)
Percentage of overall work impairment due to health, median (IQR)	37.3 (2.5-70)	20 (5-68)	60 (40-60)
Percentage of activity impairment due to health, median (IQR)	50 (20-70)	30 (20-50)	60 (40-80)