

Background

- Interstitial lung disease (ILD) is an extra-articular manifestation of rheumatoid arthritis (RA) and clinically significant ILD occurs in nearly 10 % of RA patients¹⁻²
- RA-ILD leads to significant morbidity and premature mortality
- Several patterns of RA-ILD: Usual Interstitial Pneumonia (UIP) and Nonspecific Interstitial Pneumonia (NSIP) with cellular or fibrotic pattern
- 5-year mortality in UIP is greater than 50%, while non-fibrotic NSIP carries more favorable prognosis³
- Corticosteroids and DMARDs are routinely used, but treatment guidelines do not exist⁴

Purpose

- To establish a local UAB RA-ILD registry
- To use the RA-ILD Registry to study the outcomes of patients with RA-ILD

Methods

- Study Population
 - adult patients with diagnosis of RA and ILD by ICD9/ ICD10 codes
 - treated at UAB between January 2010 and December 2019
- Chart review to identify RA-ILD
 - RA based on ACR 1987 or 2010 ACR/EULAR criteria
 - RA-ILD based on diagnosis by an expert pulmonologist
- Variables: demographics (age, sex, race, BMI), antibody status (RF/CCP), lifestyle habits (e.g. smoking), pulmonary function measurements (e.g. DLCO, FVC)
- Medications used to treat RA-ILD (e.g. azathioprine, mycophenolate mofetil / mycophenolic acid, rituximab, nintedanib and pirfenidone)
- Statistical analysis
 - Descriptive statistics for categorical and continuous variables
 - Comparisons between groups done by t-test (continuous variables) or chi square test (categorical variables)

Results

- 103 patients met the definition of RA-ILD and were included
- Characteristics of 36 patients are presented
- The mean (SD) age of diagnosis of ILD was 64 (13.46) years
- Patients were mostly women (57%) and 69 % were Caucasian
- 50% of the patients were past smokers and 44% had never smoked
- The rheumatoid factor (RF) was positive in 26 (72%) patients, while anticyclic citrullinated peptide (anti-CCP) was positive in 30 (83%) of the patients
- High-resolution chest computed tomography (CT) scans revealed UIP in 20 (55%) patients and NSIP in 6 (17%) patients
- For the RA-ILD treatment 14(39%) patients were on azathioprine, 14 (39%) on mycophenolate mofetil and mycophenolic acid, 4 (11%) patients on rituximab and 4 (11%) were on anti-fibrotics (nintedanib and pirfenidone)

Results

Table 1: Baseline Characteristics of Participants with RA-ILD

Characteristics N (%)	All Medications 36 (100)	AZA 14 (39)	MMF and Mycophenolic acid 14 (39)	RTX 4 (11)	Anti-fibrotics 4 (11)
	Age, at diagnosis of ILD, years, mean (SD)	64(13.46)	62(15.48)	64(11.8)	70(6.03)
Race, Caucasian, N (%)	25(69)	11(65)	7 (54)	3 (75)	4(100)
Sex, Female, N (%)	20(57)	9 (53)	8 (61)	2 (50)	1 (25)
BMI, mean (SD)	32(11.2)	34(15.23)	36(15.99)	26(2.88)	26(5.66)
Former Smoker, Yes, N (%)	18(50)	8(47)	4(31)	3(75)	3(75)
RF, Yes, N (%)	26(72)	12(71)	10(77)	3(75)	3(75)
Anti-CCP, Yes, N (%)	30 (83)	14 (82)	12(92)	3(75)	4(100)
Pattern on high-resolution CT					
UIP, N (%)	20(55)	10(59)	7(54)	1(25)	3(75)
NSIP, N (%)	6 (17)	4(23)	4 (31)	0 (0.0)	1(25)
Other, N (%)	10 (28)	3 (18)	2 (15)	4 (75)	0 (0.0)
Pulmonary function testing					
FVC at treatment initiation, (mean +SD)	66.7 +16.1	63.7+18.3	59.7+18.2	62+18.7	74.2+19.4
DLCO at treatment initiation, (mean +SD)	48.6 +19.0	47.1+19.1	41.7+13.7	46.7+25.7	36.7+17.3
FVC/ DLCO at treatment initiation, (mean +SD)	1.5+0.6	1.6+1.0	1.6+1.0	1.5+0.5	2.4+1.2
FVC at 12 months from treatment, (mean +SD)	67.5 +15.7	63.5+17.5	58.8+18.4	66.7+16.6	71.6+15.9
DLCO at 12 months from treatment, (mean +SD)	49.8+18.3	45.4+15.7	43.6+13.6	44.2+18.4	46.6+15.5
FVC/ DLCO at 12 months from treatment, (mean +SD)	1.5+0.6	1.5+0.4	1.5+0.4	1.6+0.4	1.5+0.1

AZA: Azathioprine; MMF: Mycophenolate mofetil; Mycophenolic acid: Myfortic; RTX: Rituximab; Anti-fibrotics: Nintedanib and Pirfenidone

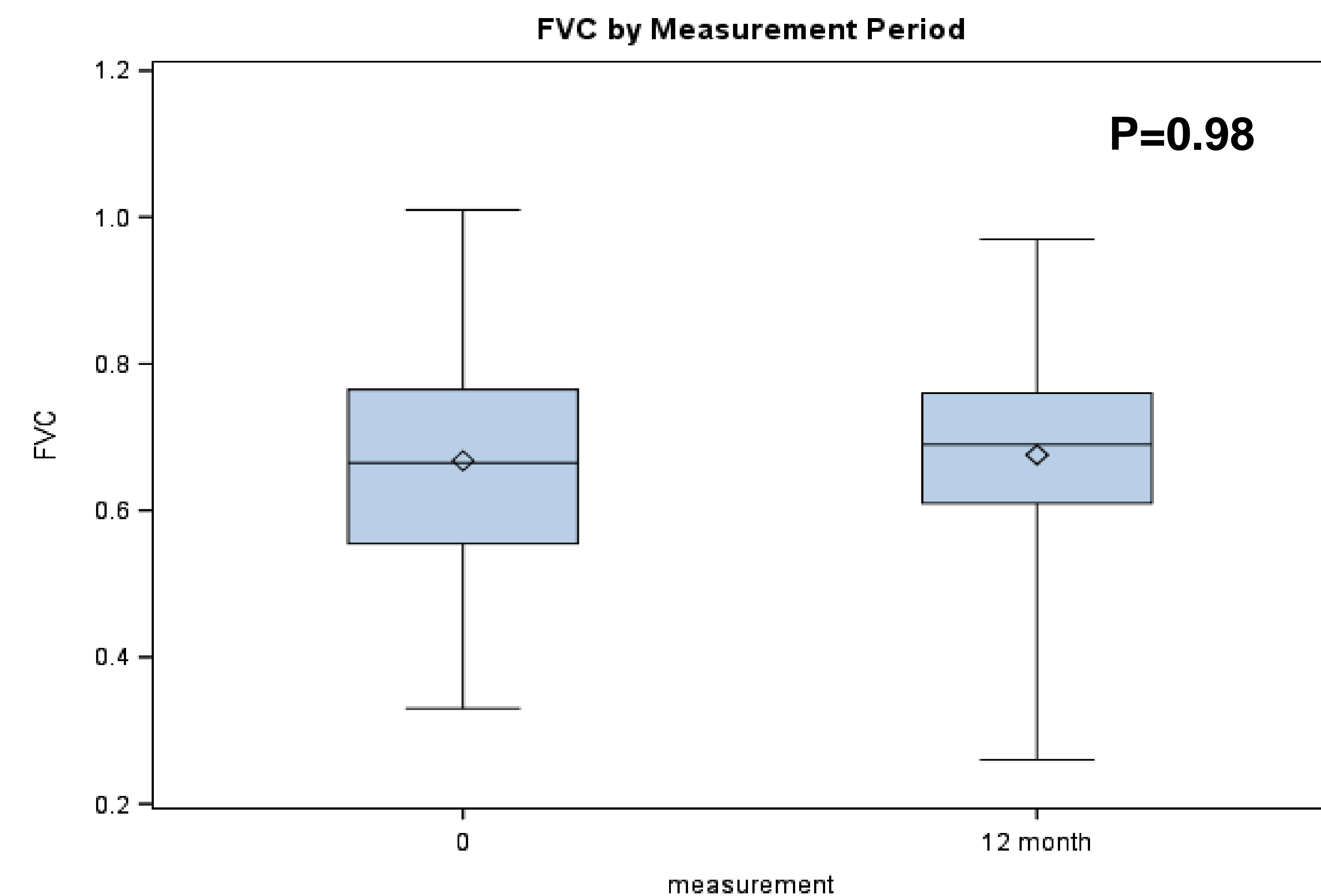


Figure 1: Box plot comparing FVC percent predicted at the time of initiation of treatment of ILD and at 12 months after treatment (univariable analysis)

Results

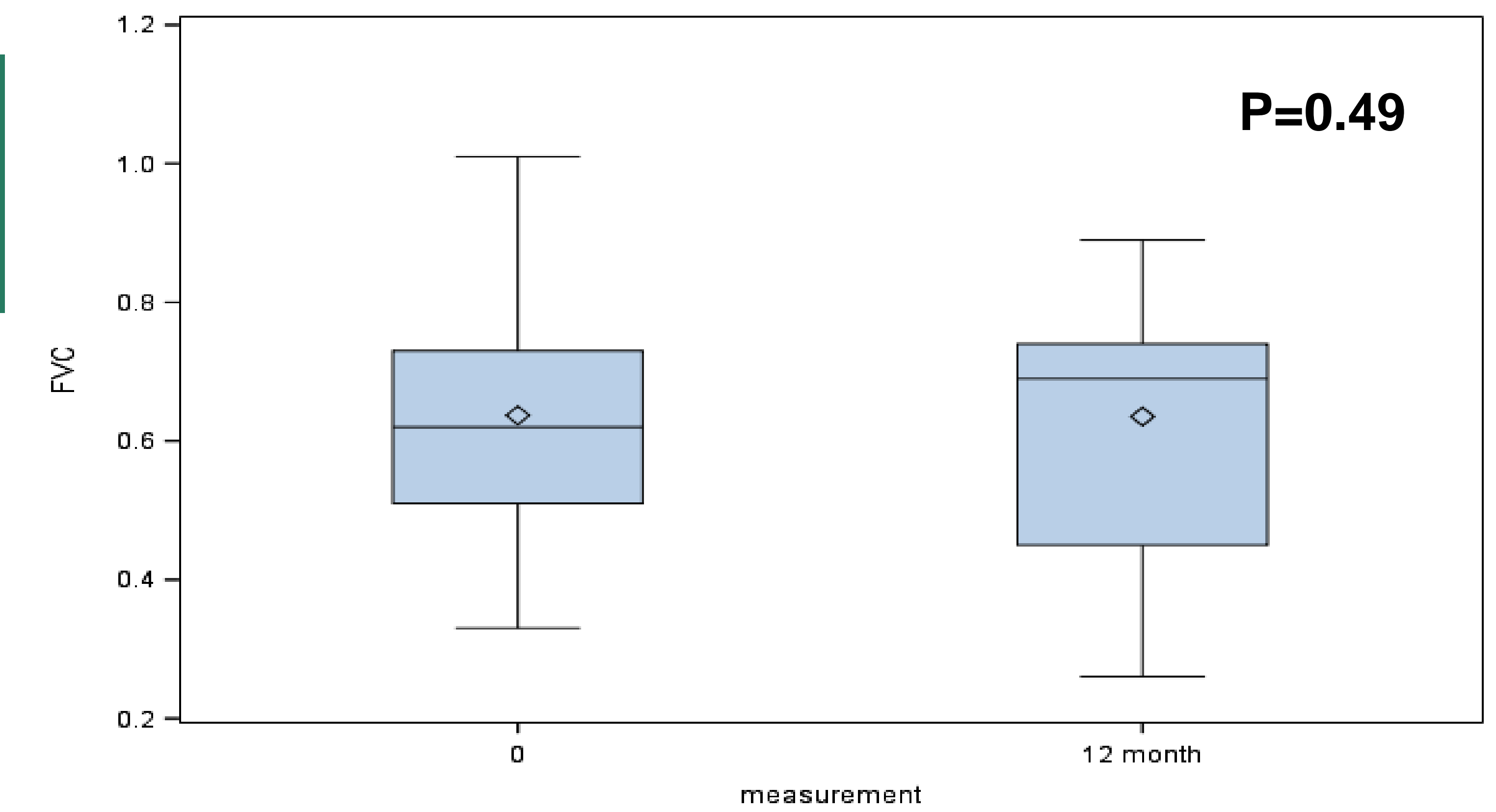


Figure 2: Box plot diagram comparing the FVC percent predicted at the time of treatment with azathioprine and at 12 months after treatment

Conclusions

- The majority of the patients with RA-ILD in our sample were using non-biologic DMARDs including (e.g. azathioprine, mycophenolate mofetil and mycophenolic acid)
- The newer anti-fibrotic medications, nintedanib and pirfenidone were used in 4 Caucasian patients
- FVC and DLCO at 12 months were stable in univariable analysis
- No statistically significant change in FVC in rituximab subgroup (P=0.11)
- Further statistical analysis is ongoing

Strengths & Limitations

Strengths included:

- 1st local UAB RA-ILD registry

Limitation included:

- Only a small number of patients were included in this analysis

References

1. Olson AL et al. Am J Respir Crit Care Med. 2011;183:372.
2. Duarte AC et al. Rheumatology (Oxford) 2019; 58:2031.
3. Strand MJ et al. Chest. 2014;146(3):775-785.
4. Mathai SC et al. BMJ. 2016;352:h6819.

Disclosures

none