Correction to: Association of rheumatoid arthritis-related autoantibodies with pulmonary function test abnormalities in a rheumatoid arthritis registry

Sicong Huang^{1,2} · Xintong He¹ · Tracy J. Doyle^{2,3} · Alessandra Zaccardelli¹ · Allison A. Marshall^{1,4} · H. Maura Friedlander¹ · Rachel B. Blaustein¹ · Elisabeth A. Smith¹ · Jing Cui¹ · Christine K. Iannaccone¹ · Taysir G. Mahmoud¹ · Michael E. Weinblatt^{1,2} · Paul F. Dellaripa^{1,2} · Nancy A. Shadick^{1,2} · Jeffrey A. Sparks^{1,2}

Published online: 4 February 2020

© International League of Associations for Rheumatology (ILAR) 2020

Correction to: Clinical Rheumatology (2019) 38:3401–3412
<https://doi.org/10.1007/s10067-019-04733-9>

The publisher regrets that the two sections under the Results omitted inadvertently on the original published version of the above article. The text are as follows:

Pulmonary function test results

Among the subjects included in the study, 188 subjects had PFTs performed for clinical indications. Seropositive subjects had lower median % predicted FEV1 80%, IQR 59–93% compared with seronegative subjects (89.5%, IQR 70–101%; $p = 0.034$). While there were no statistical differences between seropositive and seronegative RA for FVC, FEV1/FVC, or DLCO, the seropositive subjects tended to have lower results (Table 2). Any PFT abnormality was observed in 84 seropositive subjects and 16 seronegative subjects.

RA-related autoantibodies and any pulmonary function test abnormality

Table 3 shows the unadjusted and multivariable-adjusted associations of RA serostatus with the primary composite outcome of any PFT abnormality (restriction, obstruction, or diffusion abnormality) on clinically indicated PFTs. Seropositivity was significantly associated with increased odds of any PFT abnormality (OR 2.29, 95% CI 1.30–4.03), adjusted for age, sex, education, smoking status, BMI, and RA duration. Combined CCP and RF positivity had multivariable OR of 1.67 (95% CI 1.03–2.69) and 1.99 (95% CI 1.21–3.27), for any PFT abnormality compared with CCP and RF negativity, respectively. There was no statistically significant dose effect of CCP titer for the primary outcome (p for trend 0.061). However, the RF titer dose effect had a statistically significant p for trend at 0.001, such that high-titer RF was associated with two-fold increased odds for any PFT abnormality (OR 2.29, 95% CI 1.37–3.84) compared with RF-. In subjects with discordant CCP/RF patterns, CCP-/RF+ tended to have a stronger association with any PFT abnormality (OR 2.78, 95% CI 1.20–6.44) than CCP+/RF- (OR 1.91, 95% CI 0.75–4.87), when compared with CCP-/RF-.

The online version of the original article can be found at <https://doi.org/10.1007/s10067-019-04733-9>

✉ Sicong Huang
shuang@bwh.harvard.edu

✉ Jeffrey A. Sparks
jsparks@bwh.harvard.edu

¹ Division of Rheumatology, Immunology and Allergy, Brigham and Women's Hospital, 60 Fenwood Road, Boston, MA 02115, USA

² Harvard Medical School, 25 Shattuck Street, Boston, MA 02115, USA

³ Division of Pulmonary and Critical Care Medicine, Brigham and Women's Hospital, 75 Francis Street, Boston, MA 02115, USA

⁴ Tufts School of Medicine, 145 Harrison Avenue, Boston, MA 02111, USA

Table 2 Pulmonary function test results overall and by serologic status, among the subset of subjects who had testing performed through routine clinical care ($n=188$)

	All ($n=188$)	Seropositive ($n=146$)	Seronegative ($n=42$)	<i>p</i> value
FEV ₁ (% predicted)	81.5 (61–96)	80 (59–93)	89.5 (70–101)	0.034
FVC (% predicted)	84 (66–97)	82.5 (63–96)	88 (75–105)	0.055
FEV ₁ /FVC	76 (68–80.5)	76 (68–81)	76.5 (72–80)	0.352
D _{LCO} (% predicted)	71 (53–85)	68 (53–82)	78 (58–90)	0.060

Table 3 Unadjusted and multivariable odds ratios for any clinically-indicated pulmonary function test abnormality (restriction, obstruction, or diffusion abnormality) according to RA-related autoantibody status ($n=1272$)

	Unadjusted OR (95%CI)	Multivariable* adjusted OR (95%CI)
Seronegative	1.00 (REF)	1.00 (REF)
Seropositive	2.44 (1.41–4.23)	2.29 (1.30–4.03)
CCP negative	1.00 (REF)	1.00 (REF)
CCP positive	1.87 (1.18–2.96)	1.67 (1.03–2.69)
RF negative	1.00 (REF)	1.00 (REF)
RF positive	2.18 (1.35–3.52)	1.99 (1.21–3.27)
CCP negative	1.00 (REF)	1.00 (REF)
CCP >1 to ≤3x ULN	1.88 (0.95–3.70)	1.78 (0.89–3.57)
CCP >3x ULN	1.86 (1.16–3.00)	1.64 (1.00–2.69)
<i>p</i> for trend	0.012	0.061
RF negative	1.00 (REF)	1.00 (REF)
RF >1 to ≤3x ULN	1.30 (0.67–2.55)	1.32 (0.67–2.62)
RF >3x ULN	2.60 (1.58–4.27)	2.29 (1.37–3.84)
<i>p</i> for trend	<0.001	0.001
CCP–/RF–	1.00 (REF)	1.00 (REF)
CCP+/RF–	1.81 (0.72–4.53)	1.91 (0.75–4.87)
CCP–/RF+	2.53 (1.11–5.75)	2.78 (1.20–6.44)
CCP+/RF+	2.52 (1.44–4.41)	2.28 (1.27–4.07)

*Adjusted for age (continuous, years), sex (male, female), education (less than college degree, college degree or higher), smoking status (never, past, current), body mass index (continuous, kg/m²), and RA duration at study baseline (continuous, years)