

Lung function measured via Pletismography and Minibox in patients with airway obstruction of different severity.

Dal Negro R.W. – CEMS – Verona - Italy

Aim: to compare lung function [(VC (L); FVC (L); FEV1 (L); MEF25-75% (L/sec); MEF25% (L/sec); PEF (L/sec); RV (L); TLC (L)] measured via the pressometric pletismograph (Platinum Elite DL MedGraphics - Minneapolis-U.S.) and of the Minibox spirometer (PulmOne -Ra-anana- Israel) in patient with airway obstruction of different severity. Statistical comparison: Welch test; significance assumed: $p < 0.05$.

Methods: lung function of 55 consecutive subjects (males $n=24$; mean age: $62.4\text{ys} \pm 14.9\text{sd}$; mean BMI: $24.9 \pm 4.4\text{sd}$) was measured with both methods. Asthmatics were $n=26$ (males $n=9$; mean age: $52.3\text{ys} \pm 13.6\text{sd}$; mean BMI: $24.3 \pm 4.2\text{sd}$) and COPD $n=29$ (males $n=15$; mean age: $71.4\text{ys} \pm 9.0\text{sd}$; mean BMI: $24.4 \pm 4.6\text{sd}$).

Results: means \pm ds for each variable measured by the two methods are reported in tabb. 1-3 for the total sample, for asthmatic, and for COPD patients, together with the corresponding statistical comparisons (always $p=ns$). Figg. 1-6 report the regressions between RV and of TLC measured via the two methods in the total sample, in asthmatic, and in COPD patients. Regression were high indeed.

Conclusions: lung function, and RV and TLC in particular, proved indistinguishable when measured via the pletismographic method and via the Minibox spirometer.

Tab. 1 - Total sample (n=55)

(males n=24; mean age: 62.4 ys±14.9sd; mean BMI: 24.9±4.4)

Variables	Pletismographic	Minibox	Welch test p
VC (L)	3.3±0.9	3.5 ±1.0	ns
FVC (L)	3.0±0.9	3.1±0.9	ns
FEV1 (L)	2.3±0.8	2.4±0.8	ns
MEF25-75% (L/sec)	2.2±1.1	2.2±1.1	ns
MEF25% (L/sec)	1.0±0.6	0.9±0.5	ns
PEF (L/sec)	5.7±1.9	6.0±1.9	ns
RV (L)	2.3±0.9	2.1±0.9	ns
TLC (L)	5.4±1.1	5.5±1.1	ns

Tab. 2 - Asthma sample (n=26)

(males n=9; mean age: 52.3 ys±13.6sd; mean BMI: 24.3±4.7)

Variables	Pletismographic	Minibox	Welch test p
VC (L)	3.5±0.8	3.7±0.8	ns
FVC (L)	3.3±0.8	3.4±0.7	ns
FEV1 (L)	2.7±0.7	2.7±0.7	ns
MEF25-75% (L/sec)	2.8±1.1	2.8±1.0	ns
MEF25% (L/sec)	1.3±0.7	1.2±0.6	ns
PEF (L/sec)	6.3±1.9	6.6±1.7	ns
RV (L)	2.1 ±0.9	2.0±1.0	ns
TLC (L)	5.4±1.0	5.4±1.0	ns

Tab. 3 - COPD sample (n=29)

(males n=15; mean age: 71.4 ys±9.0sd; mean BMI: 25.4±4.6)

Variables	Pletismographic	Minibox	Welch test p
VC (L)	3.1±1.0	3.3±1.2	ns
FVC (L)	2.7±0.9	2.8±0.9	ns
FEV1 (L)	2.0±0.7	2.0±0.7	ns
MEF25-75% (L/sec)	1.7±0.9	1.7±0.8	ns
MEF25% (L/sec)	0.7±0.4	0.7±0.3	ns
PEF (L/sec)	5.2±1.8	5.4±1.8	ns
RV (L)	2.4±0.8	2.3 ±0.9	ns
TLC (L)	5.5±1.2	5.6±1.2	ns

Fig. 1

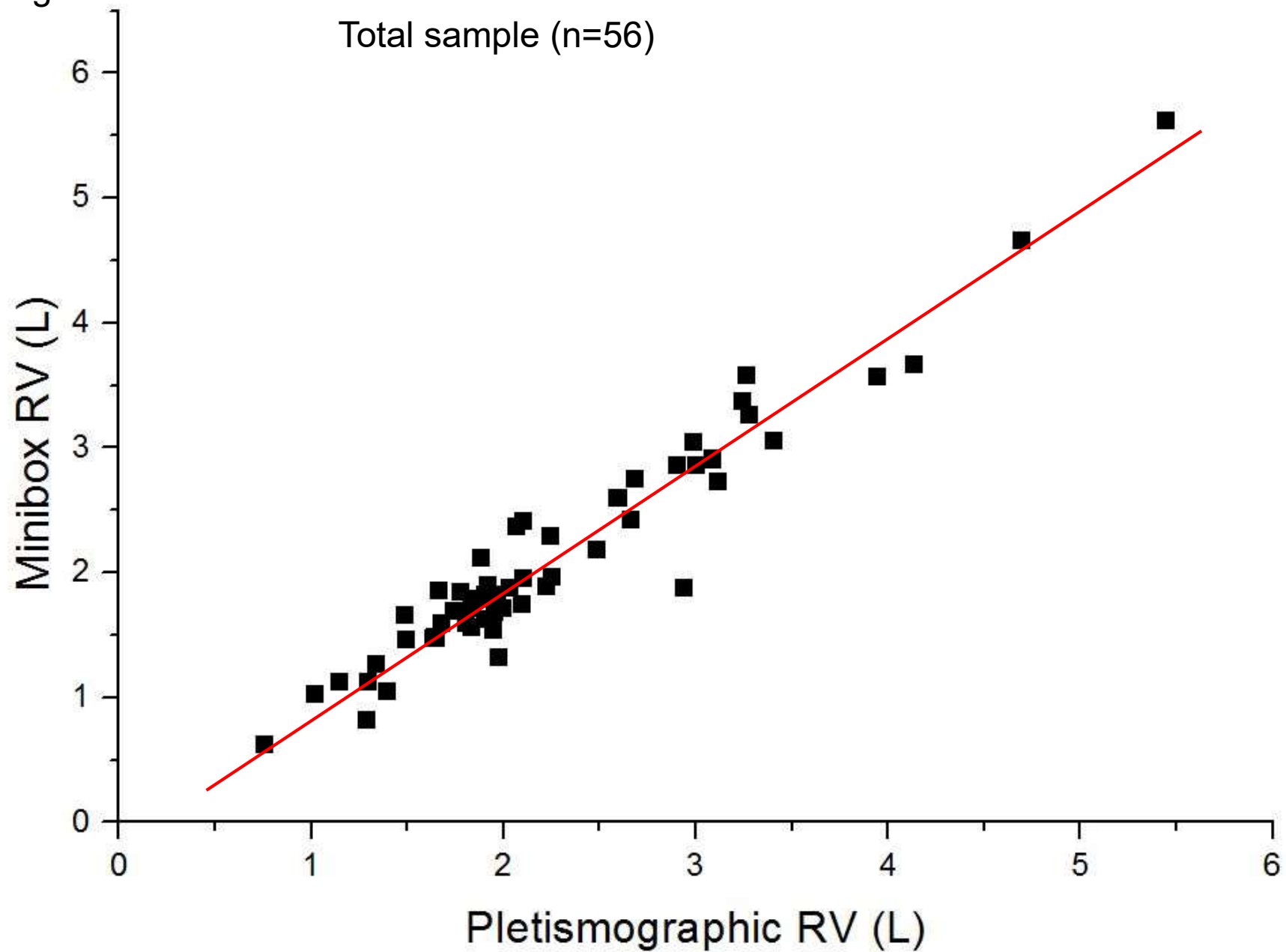


Fig. 2

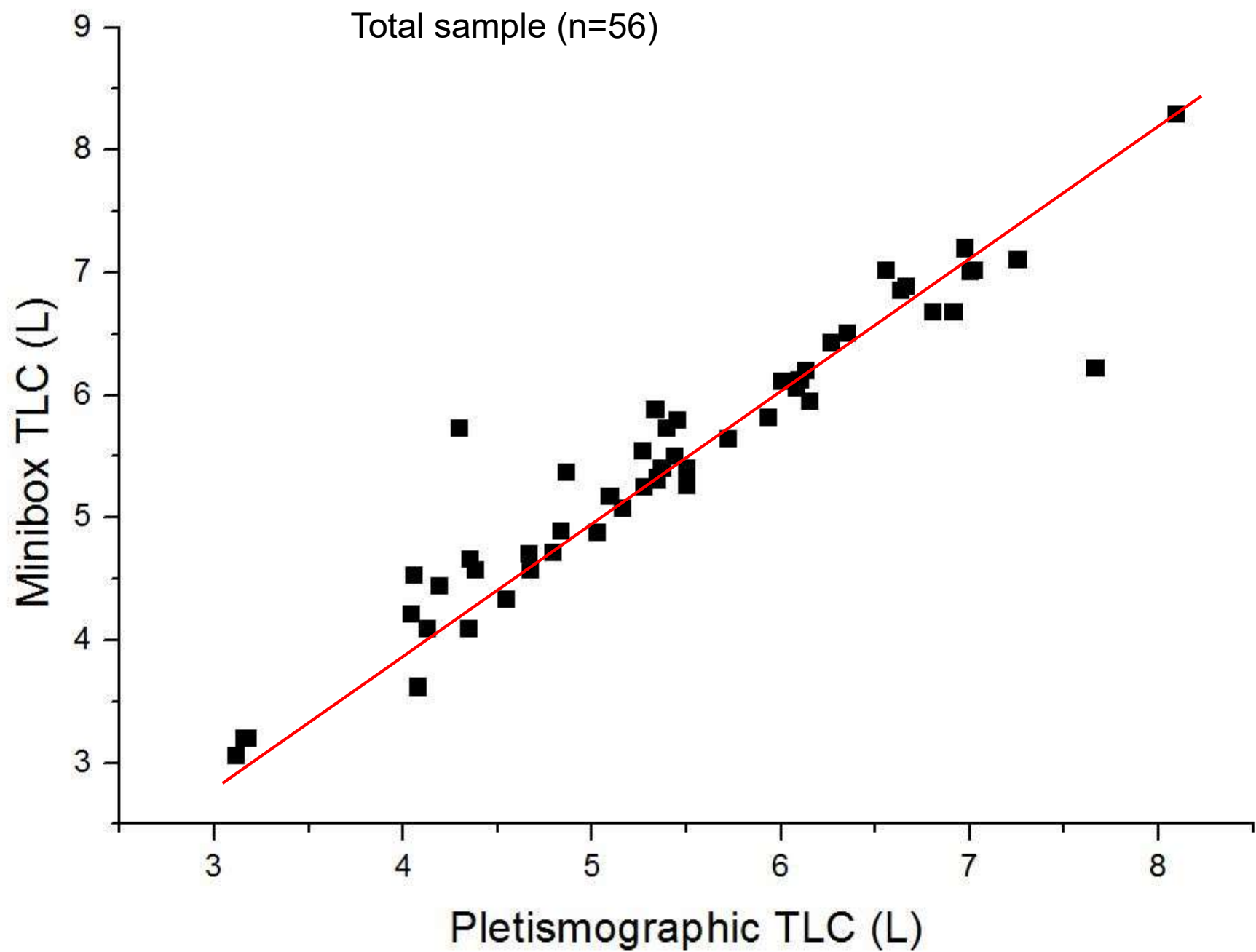


Fig. 3

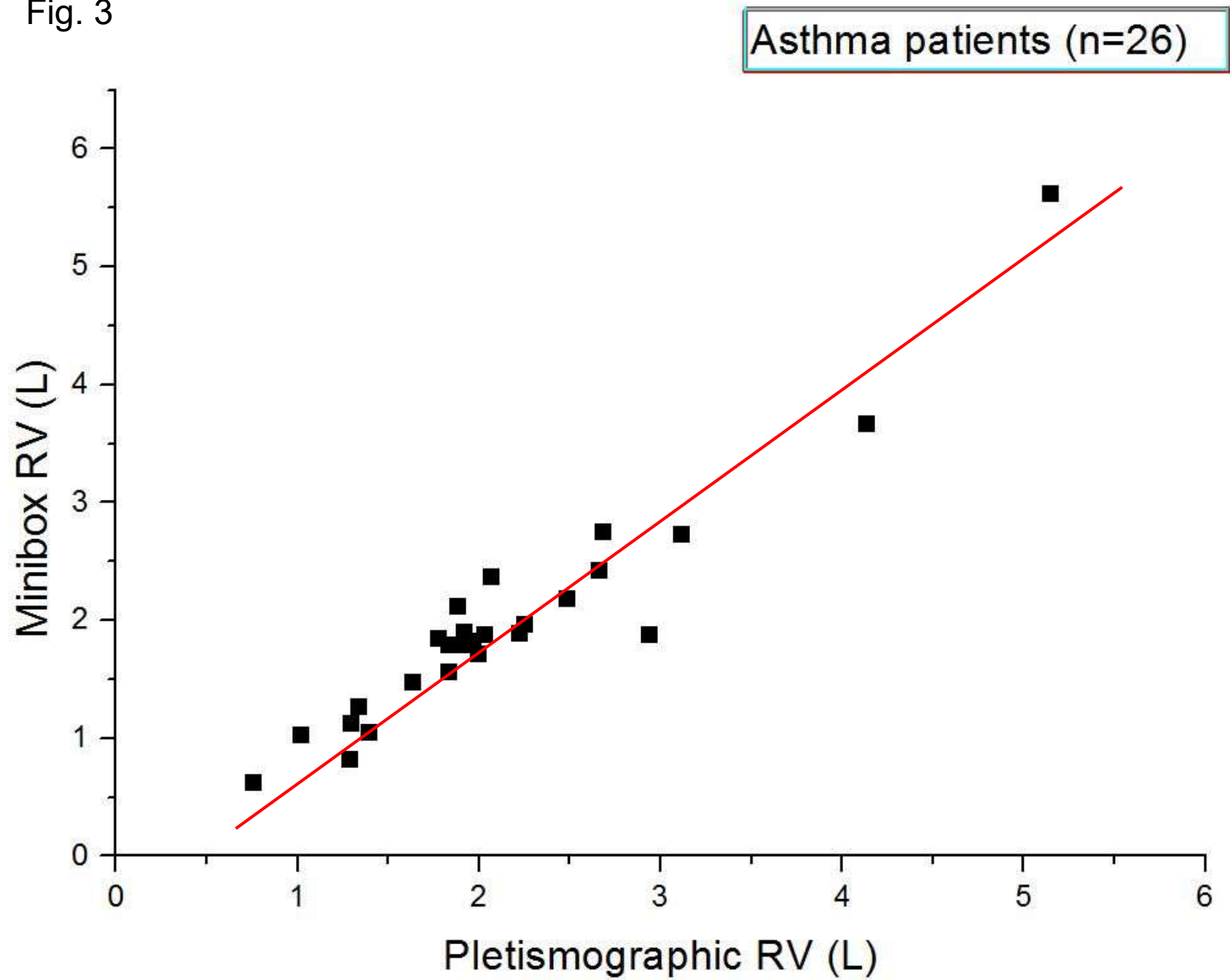


Fig. 4

Asthma patients (n=26)

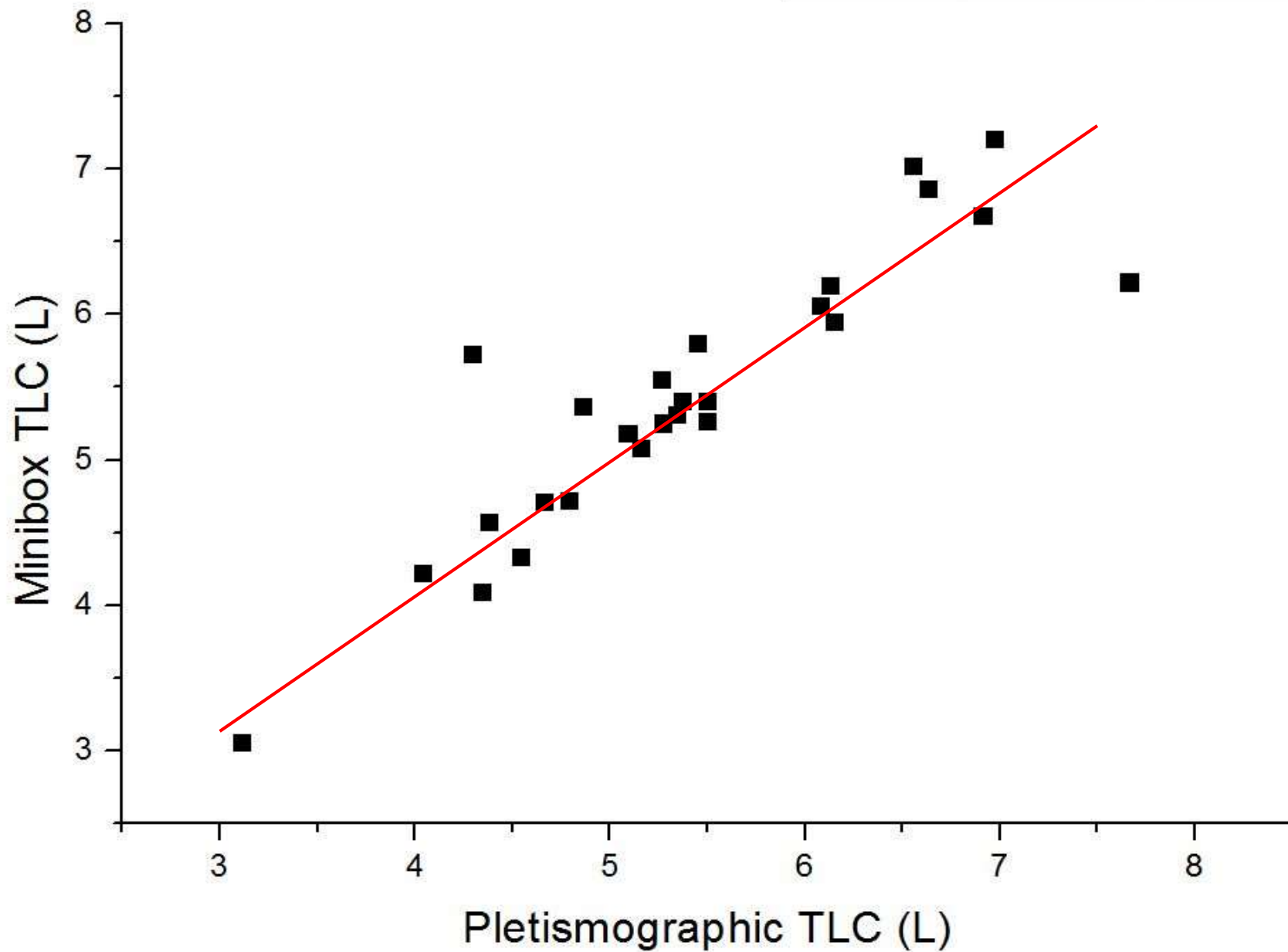


Fig. 5

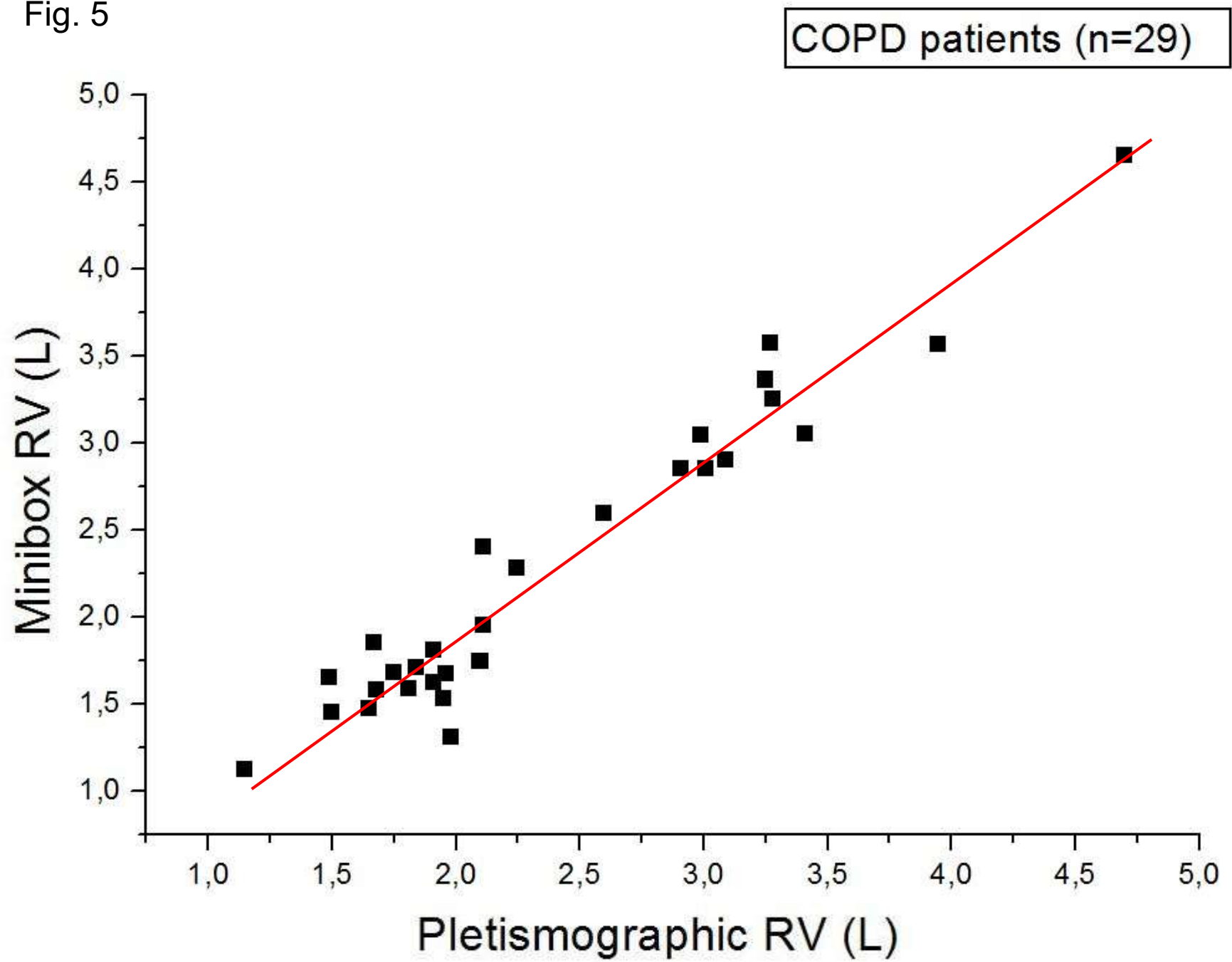


Fig. 6

