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Title: Elevated serum levels of oxidized low-density lipoprotein in COPD patients

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Body: Background/Objective Recent studies suggested oxidized low density lipoprotein (ox-LDL) is involved in oxidative stress and inflammation, which are the key characteristics of chronic obstructive pulmonary disease (COPD). This study aimed to investigate the serum levels of ox-LDL in COPD patients and their correlations with lung function, systematic inflammation and oxidative stress. Method 48 COPD patients and 32 healthy controls were recruited. Serum ox-LDL and C-reactive protein (CRP) levels were analyzed by enzyme-linked immunosorbent assay, oxidative stress was analyzed by measurement of Reactive Oxygen Species (ROS) with a colorimetric kit. Results The clinical summary of included subjects was listed in Table 1.

Table 1. Characteristics of included subjects

	COPD (n=48)	Control (n=32)	P value
Age (year)	62±10	58±11	0.177
Sex (m/f)	33/15	22/10	0.626
FEV1 (L)	2.06±0.78	2.66±0.61	0.000
FVC (L)	3.40±1.13	3.21±0.77	0.367
FEV1/FVC%	59.73±8.19	83.30±5.05	0.000
FEV1%predicted	86.87±21.64	115.22±15.91	0.000
oxLDL (mU/L)	18.62±7.56	12.57±5.90	0.000
CRP (ng/ml)	18.49±5.79	15.21±4.91	0.01
ROS (nmol/ml)	293.11±90.44	242.86±70.15	0.01

The levels of serum ox-LDL were significantly elevated in COPD patients when compared to controls (18.62±7.56 mU/L vs. 12.57±5.90 mU/L, $p < 0.05$). The levels of serum CRP and ROS were significantly

higher in COPD patients. Regression correlation analysis showed that serum ox-LDL levels were inversely correlated with lung function ($r=-0.347$, $p=0.016$), while positively with serum CRP and ROS levels in COPD patients (For CRP, $r=0.365$, $p=0.011$; for ROS, $r=0.346$, $p=0.016$). Conclusion Serum ox-LDL levels are increased in COPD patients, and are associated with lung function, systematic inflammation and oxidative stress in COPD.