FIGURE E1. White blood cell (A) and platelet (B) counts in patients with chronic obstructive pulmonary disease (*COPD, filled circles,* n = 9) and without chronic obstructive pulmonary disease (*non-COPD, open circles,* n = 10) at baseline before sternotomy *(BL),* after chest closure *(CC),* and 2 hours after intensive care unit admission *(ICU). Horizontal bars* represent median values. *Double asterisk* indicates *P* < .01; *triple asterisk* indicates *P* < .001.
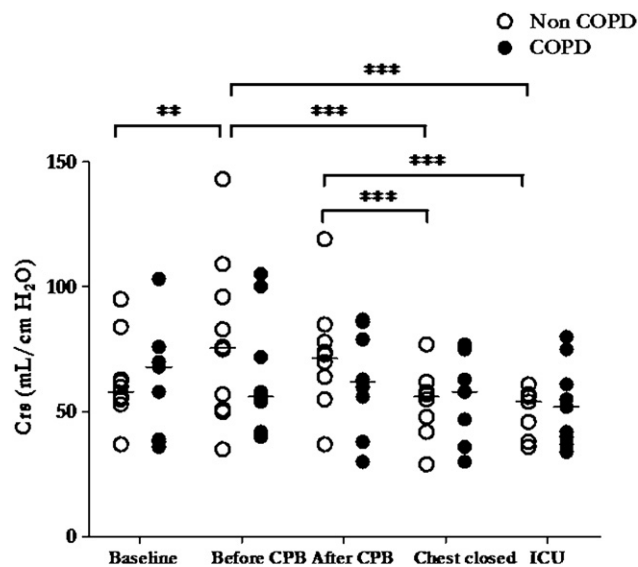

FIGURE E2. Compliance of the respiratory system *(Crs)* in patients with chronic obstructive pulmonary disease (*COPD, filled circles,* n = 9) and without chronic obstructive pulmonary disease (non-COPD, *open circles,* n = 10) at 5 major interventional phases: before sternotomy *(Baseline),* before and after cardiopulmonary bypass *(CPB),* after chest closure *(chest closed),* and 2 hours after intensive care unit admission *(ICU). Horizontal bars* represent median values. *Double asterisk* indicates *P* < .01; *triple asterisk* indicates *P* < .001. *P* values are derived from 2-way analysis of variance with repeated measurements, with Bonferroni adjustments for multiple comparisons.
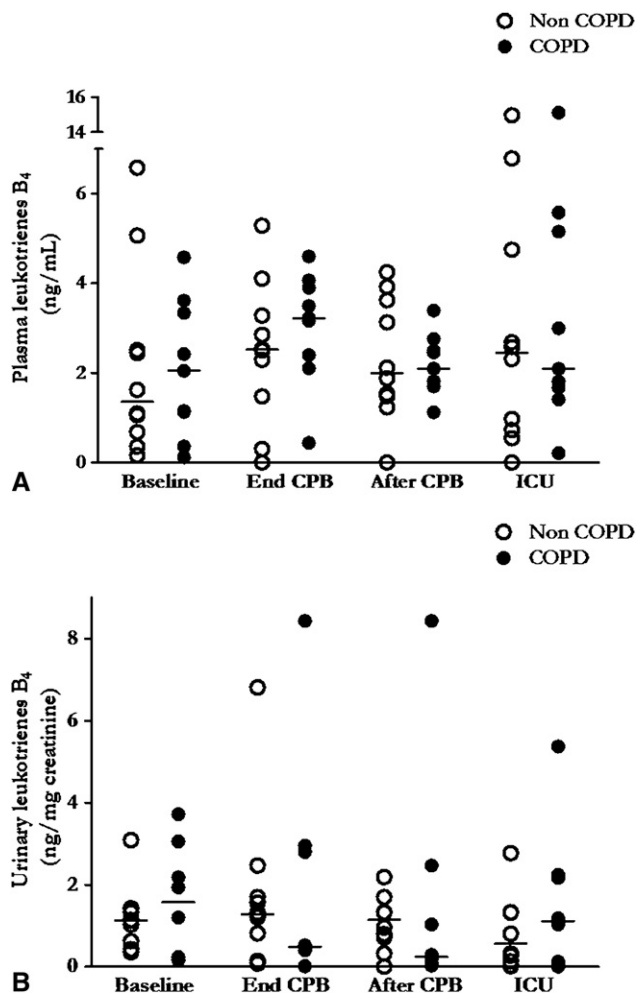
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FIGURE E4. Cysteinyl leukotrienes (A) and leukotriene B_4 (B) tracheal aspirate concentrations in 8 patients with COPD before sternotomy *(Baseline)* and after cardiopulmonary bypass *(CPB)*. *Horizontal bars* represent median values.

FIGURE E3. Plasma (A) and urinary (B) leukotriene B_4 concentrations of patients with chronic obstructive pulmonary disease *(COPD, filled circles,* n = 9 for plasma and n = 8 for urine samples) and without chronic obstructive pulmonary disease *(non-COPD, open circles,* n = 10) at 4 major interventional phases: before sternotomy *(Baseline)*, at the end of cardiopulmonary bypass with continued extracorporeal circulation *(End CPB)*, after cardiopulmonary bypass but before chest closure *(After CPB)*, and 2 hours after intensive care unit admission *(ICU)*. *Horizontal bars* represent median values.
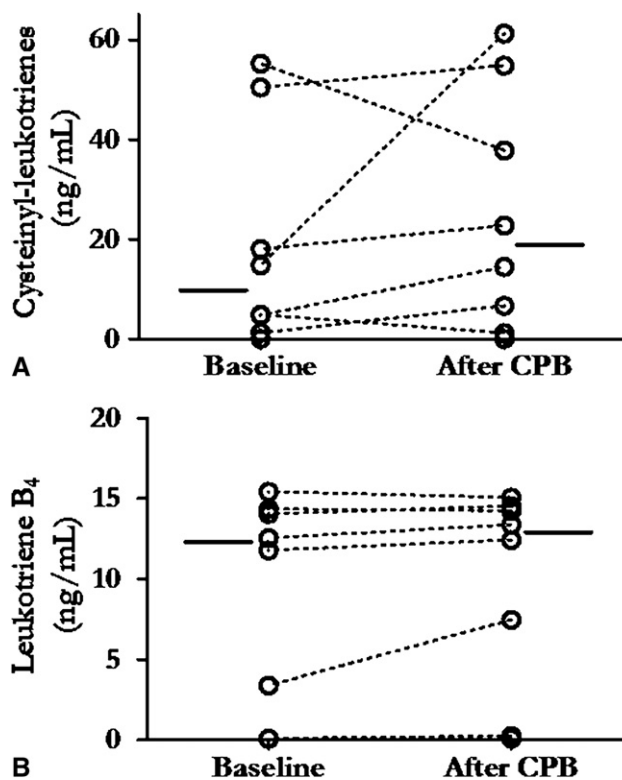
TABLE E1. Patient characteristics

Case	Sex	Age (y)	COPD	GOLD	Smoking (pack-y)	BMI (kg/cm^2)	Aspirin	Inhaled steroids	Preoperative chest radiograph	Type of surgery
1	M	81	No	NA	0	27.1	Yes	No	Normal	AVR, CABG ×1
2	M	63	No	NA	0	30.5	Yes	No	Normal	CABG ×2
3	F	71	No	NA	0	28.1	No	No	Normal	AVR
4	M	50	No	NA	0	19.8	No	No	Normal	ARR
5	M	73	No	NA	0	26.5	Yes	No	Normal	CABG ×3
6	M	76	No	NA	0	23.0	Yes	No	Normal	CABG ×3
7*	M	53	No	NA	0	22.6	No	No	Normal	MVR
8	M	61	No	NA	0	23.6	Yes	No	Normal	CABG ×3
9	F	53	No	NA	0	24.5	Yes	No	Normal	CABG ×3
10	F	57	No	NA	0	22.0	Yes	No	Normal	LVMR
11	F	66	Yes	IIa	150	34.1	Yes	No	Normal	CABG ×2
12	M	82	Yes	IIb	65	21.8	No	Yes	P/E	AVR
13	M	76	Yes	IIa	60	25.8	Yes	No	Distention	CABG ×2
14	M	61	Yes	IIa	90	18.5	No	No	Normal	CABG ×3
15	M	57	Yes	IIa	80	26.9	Yes	No	Normal	CABG ×5
16	F	75	Yes	IIa	100	43.3	Yes	Yes	Normal	CABG ×2
17	M	63	Yes	IIa	120	37.3	No	No	P/E, CPE	CABG ×4
18	F	80	Yes	IIa	50	30.3	Yes	Yes	P/E, CPE	AVR, CABG ×3
19	M	65	Yes	IIa	150	18.0	Yes	Yes	Distention	MVR

COPD, Chronic obstructive pulmonary disease; *GOLD,* Global Initiative for Chronic Obstructive Lung Disease classification[19]; *BMI,* body mass index; *M,* male; *NA,* not applicable; *AVR,* aortic valve repair; *CABG,* coronary artery bypass grafting; *F,* female; *ARR,* aortic root replacement; *MVR,* mitral valve repair; *LV,* left ventricular mass resection; *P/E,* pleural effusion; *CPE,* cardiogenic pulmonary edema. *Venous access for cardiopulmonary bypass was performed with direct cannulation of both superior and inferior venae cavae.

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TABLE E2. Hospital course of patients with and without chronic obstructive pulmonary disease

	COPD (n = 9)	No COPD (n = 10)	P value
Duration of mechanical ventilation (h, mean ± SD)	13.7 ± 5.8	6.8 ± 3.4	<.01
Duration of intensive care unit stay (d, median and interquartile range)*	2 (1–3)	1 (1–3)	.27
Postoperative atrial fibrillation (no.)	7 (78%)	3 (30%)	.24
Postoperative pneumonia (no.)	1 (11%)	0 (0%)	>.999
In-hospital mortality (no.)	1 (11%)	0 (0%)	>.999

COPD, Chronic obstructive pulmonary disease. *P value according to Mann–Whitney test.