Supplementary information

The course of circulating small extracellular vesicles in patients undergoing surgical aortic valve replacement

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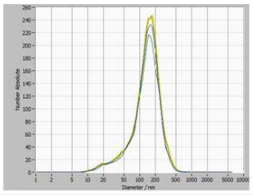
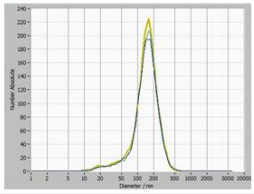
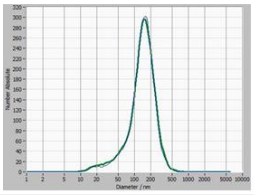
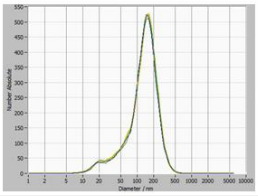
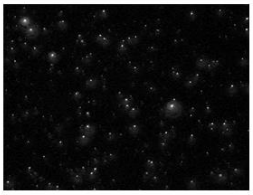
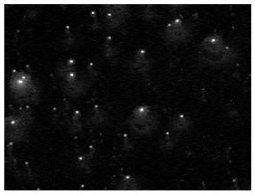
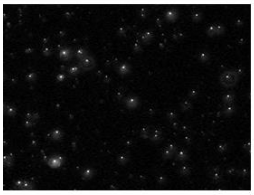
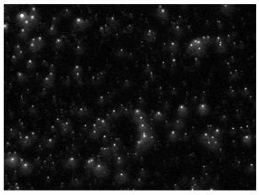
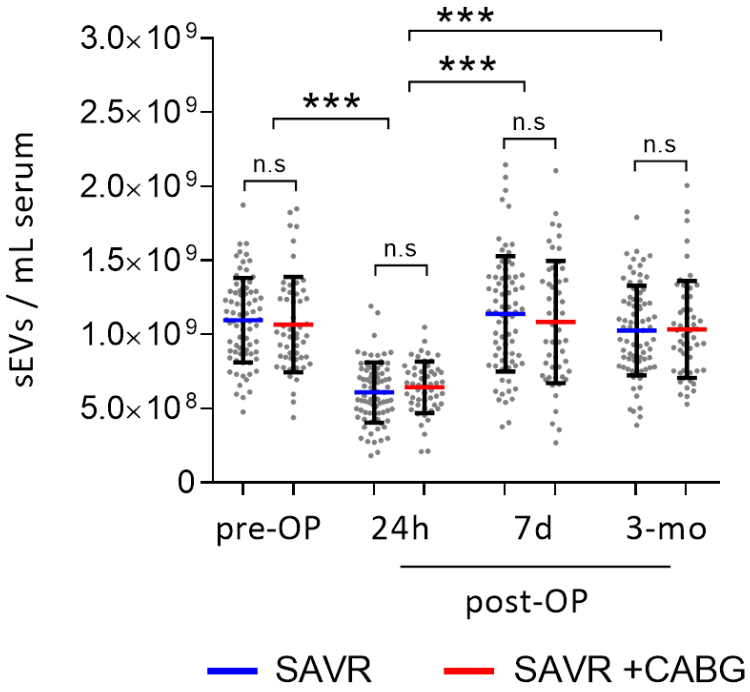
Table S1: Acquisition parameters for nanoparticle tracking analysis.

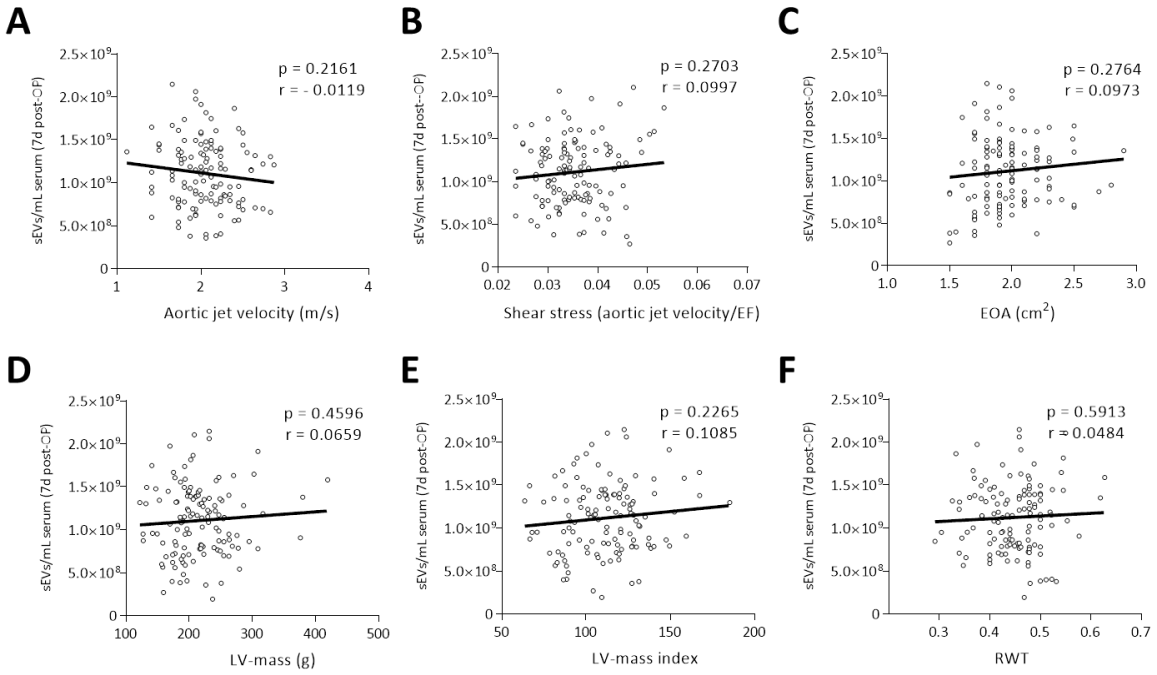
Acquisition parameters	
Sensitivity [%]	70
Shutter	70
Min. Brightness	20
Max Size [nm]	500
Min. Size [nm]	20
Polarity	Negative
Voltage	Off
Particle Drift at 0V [µm/s]	< 20
Positions	11
Cycles	10
Multiple acquisitions	3
Time Delay [min]	0

	Pre-OP	24h post-OP	7d post-OP	3-mo post-OP
				
				
X10 (nm)	52.9	70.7	60.8	46.4
X50 (nm)	141.7	145.6	141.6	136.2
X90 (nm)	243.3	238.2	240.0	232.7
Span	1.3	1.1	1.3	1.4
Mean (nm)	154	157.1	155.1	145.3
StdDev (nm)	82.1	70.2	78.1	76.1

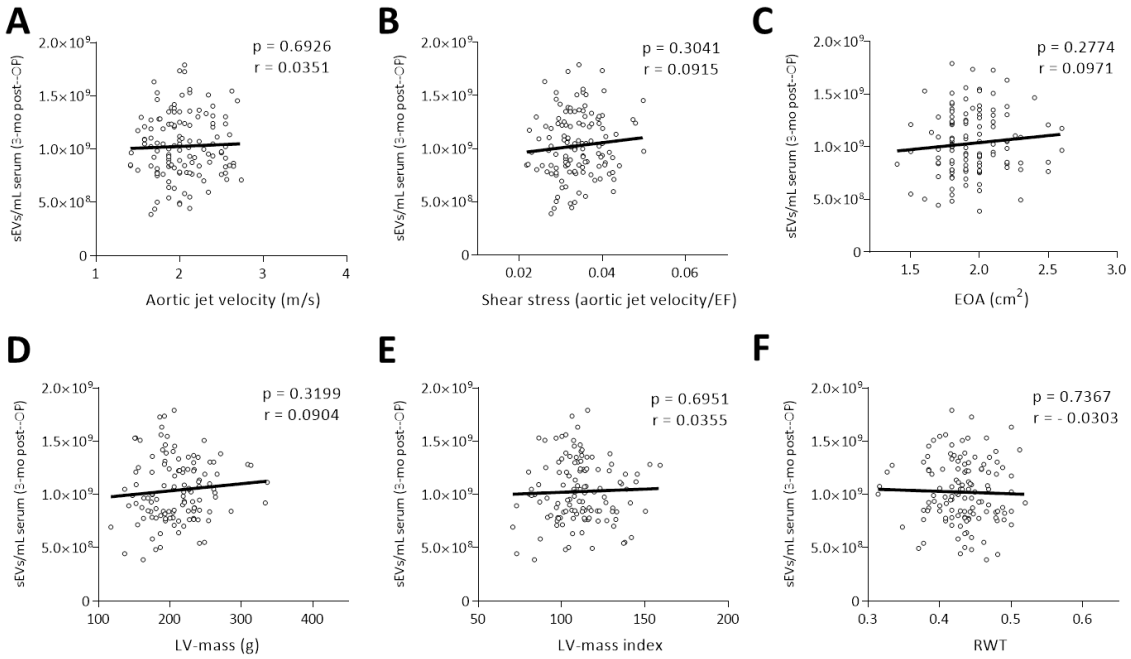
S1 Fig.: NTA analysis of sEVs. Size distribution curves and representative images as well as descriptive statistics (means of all patients) of the captured sEVs for each time point of one patient.



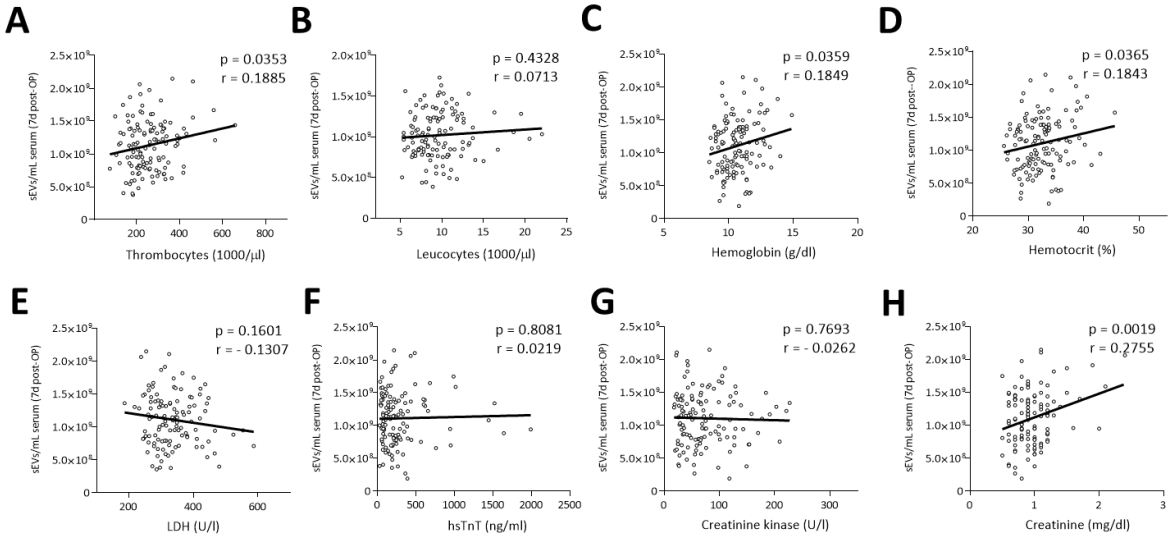
S2 Fig.: Serum levels of circulating sEVs. Comparison of sEVs of patients receiving SAVR with (red line) or without concomitant coronary artery bypass grafting (blue line) measured at four time points. pre-OP, sample from the day prior to operation; 24h post-OP, sample from the first postoperative day; 7d post-OP, sample taken on 7th postoperative day; and 3-mo post-OP, sample taken on the occasion of follow-up analysis three months after surgery. Mean ± SD; *** $p < 0.001$.



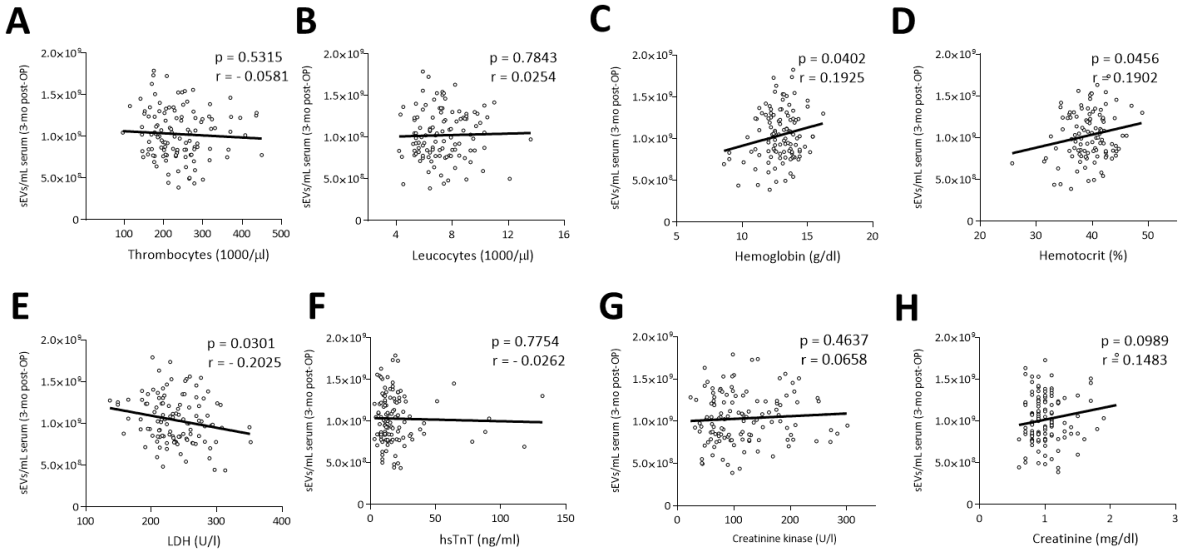
S3 Fig.: Correlation of circulating sEVs with echocardiographic parameters 7d after SAVR. Linear regression of sEVs with aortic jet velocity (A), shear stress at the level of the aortic valve (B), effective orifice area (C), LV-mass (D), LV-mass index (E) and relative wall thickness (F) 7d after SAVR.



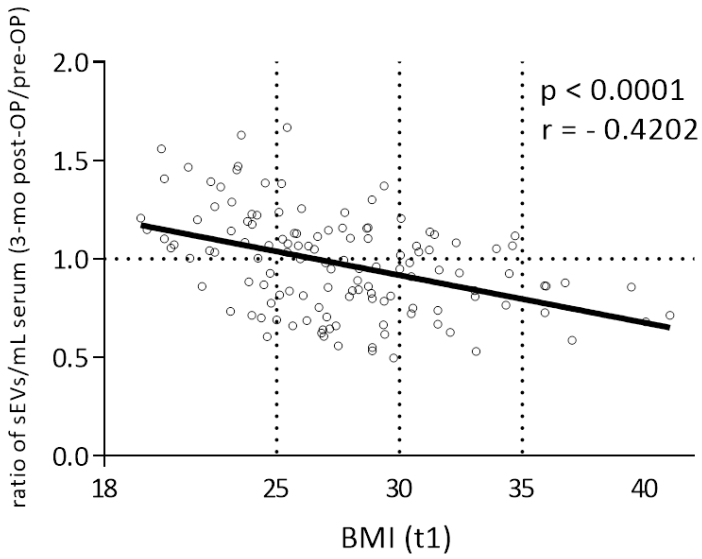
S4 Fig.: Correlation of circulating sEVs with echocardiographic parameters at follow-up three months after SAVR. Linear regression of sEVs with aortic jet velocity (A), shear stress at the level of the aortic valve (B), effective orifice area (C), LV-mass (D), LV-mass index (E) and relative wall thickness (F) 3-mo after SAVR.



S5 Fig.: Correlation of circulating sEVs with laboratory parameters 7 days after SAVR. Linear regression of sEVs with thrombocytes (A), leucocytes (B), hemoglobin (C), hematocrit (D), lactate dehydrogenase (E), high sensitive troponin T (F), creatinine kinase (G) and creatinine (H) 7 d after SAVR.



S6 Fig.: Correlation of circulating sEVs levels with laboratory parameters at follow-up three months after SAVR. Linear regression of sEVs with thrombocytes (A), leucocytes (B), haemoglobin (C), haematocrit (D), lactate dehydrogenase (E), high sensitive troponin T (F), creatinine kinase (G) and creatinine (H) 3-mo after SAVR.



S7 Fig.: Correlation of sEV ratios with BMI. Linear regression of sEV ratios with BMI in patients undergoing SAVR. Ratio of sEVs represents the levels of circulating sEVs at 3-mo post-OP divided by the respective pre-OP value. BMI, body mass index.