**Supplementary Fig. S1** Time in hours (h) to first dose of study drug after inclusion, relative to blood culture (BC) sampling, and relative to identification of *Staphylococcus aureus* (*S. aureus*) and study team notification. Abbreviations: DTI, direct thrombin inhibition; LMWH, low molecular weight heparin.

**Supplementary Fig. S2** Argatroban drug monitoring using activated partial thromboplastin time (aPTT), in five patients. Open circles indicate aPTT values after cessation of argatroban continuous infusion.

**Supplementary Fig. S3** Evolution of laboratory parameters of coagulation. (A) Fibrinogen, (B) platelet count, (C) prothrombin time (PT) and activated partial thromboplastin time (aPTT) and (D) D-dimer. Significantly higher aPTT values were observed in DTI-treated patients (as well as slightly elevated PT on day 1 and 4). Fibrinogen and platelet counts were similar in both groups. Mean and standard deviation (SD) are shown.
Supplementary Fig. S4 Evolution of laboratory parameters of inflammation. (A) White blood cell (WBC) count, (B) relative neutrophilia and (C) C-reactive protein (CRP). All values were similar in both groups. Mean and standard deviation (SD) are shown.