Aim: To investigate the potential association between preoperative fibrinogen levels and outcome in patients undergoing endovascular aortic repair (EVAR) for ruptured abdominal aortic aneurysms (RAAAs).

Methods: Consecutive patients undergoing EVAR for RAAA between March 2010 and September 2016 were recruited from a single vascular center. Patient details, including fibrinogen levels on admission, were extracted from case files. Outcome included: 30-day mortality, overall survival, major adverse cardiovascular events (MACE), endoleaks and re-interventions.

Results: Twenty-six patients (25 males, mean 73.3 years) with a RAAA receiving EVAR and available preoperative fibrinogen levels were included in this study. Four patients died within 30 days (18.1%). During the follow-up (mean 15 months), another 2 patients died from unrelated causes, 10 suffered a MACE, 7 had an endoleak and 5 required an aneurysm-related re-intervention. Presenting fibrinogen levels were significantly higher in the group of survivors (median 425mg/dl vs 246mg/dl in fatal cases; p=0.03) and in those without an endoleak (median 450mg/dl vs 214mg/dl in those with endoleak; p<0.0001). On the other hand, fibrinogen levels were not predictive of overall survival, MACE and re-intervention during follow-up.

Conclusion: In this small series of EVAR for RAAAs, higher fibrinogen levels on admission, which may indicate a preoperative hypercoagulable profile, seem to be associated with better chances of early survival and lower probability of an endoleak at follow-up. Further studies are needed to clarify this issue and possible future therapeutic implications, for example whether outcome may improve by technically increasing fibrinogen levels, as soon as the diagnosis of RAAA is made.

Figure 1: Graph showing the distribution of pre-operative fibrinogen, and statistics results comparing pre-operative fibrinogen levels between survivors-fatal cases, as well as among those with-without endoleak.

Figure 2: EVAR for RAAA in an hemodynamically unstable patient requiring intra-aortic balloon occlusion prior to endograft deployment.