Characteristics and prognosis of vascular graft infection and consequence of MDRO: a prospective observational cohort study

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Background: Vascular graft infection (VGI) is a devastating complication, with a high mortality rate. But its epidemiology and prognosis factors are not well known, especially in an era of multidrug resistant organisms (MDRO).

Materials/methods: We performed a prospective study in our tertiary care university hospital of all consecutive patients with VGI, from January 2015 to October 2017. We collected clinical characteristics, type of surgical management, microbiological data, and outcome.

We used the definition of vascular graft proposed by FitzGerald et al. MDRO definition was according to Magiorakos et al.

Cure was defined as absence of clinical, microbiological and radiological signs of infection, without new surgery for septic reason or additional antimicrobial treatment at last visit.

Results: In total, 70 patients were included; mean age was 72.3 ±11.9 years; sex ratio (M/F) was 3.7, with a mean BMI of 25.7.

Main comorbidities were: immunosuppression (n=27; 38.6%) and diabetes mellitus (n=21; 30.0%).

Sites of surgery were: peripheral (n=44; 62.9%), aorto-peripheral (n=16; 27.1%), aortic (n=5; 7.1%), and carotid (n=1; 1.4%); 44 (62.9%) cases were early-onset infections.

Overall, 46 (65.7%) patients presented with fever, 39 (55.7%) with fistula discharge, and 22 (31.4%) with abscess. Also, 4 (5.7%) patients were in septic shock.

Surgical management was: complete excision (n=21; 30.0%), incomplete excision (n=13; 18.6%), and debridement without excision (n=29; 41.4%).

Main non-MDRO involved were: Enterobacteriaceae (n=20; 28.6%), enterococci (n=15; 21.4%), Staphylococcus aureus (n=14; 20.0%) and coagulase-negative staphylococci (n=12; 17.1%).

Thirteen (18.6%) patients had VGI due to MDRO. Main MDRO involved were: Enterobacteriaceae (n=8; 11.4%), coagulase-negative staphylococci (n=3; 4.3%), enterococci (n=3; 4.3%), and Pseudomonas aeruginosa (n=2; 2.9%).

VGI were polymicrobial in 35 (50.0%) cases.

Outcomes were: cure (n=35; 50%), failure (n=27; 38.6%), and lost to follow-up (n=9; 12.9%). Mean duration of follow-up was 195 ±226 days.
There is a significant difference concerning cure vs. failure only in case of: shock (0.0 vs. 0.5; p<10^-5), *Enterobacteriaceae* involved (0.25 vs. 0.5; p=0.04), infection due to MDRO (0.3 vs. 0.5; p=0.035), and polymicrobial infection (0.4 vs. 0.5; p=0.03).

**Conclusions:** The prognosis of VGI is poor, especially in case of shock, VGI due to MDRO or *Enterobacteriaceae*, and polymicrobial infection.