

Influence of vascular access flow on extracorporeal circuit coagulation in patients with arteriovenous graft

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Introduction

Blood loss in dialysis have a significant effect on patients' quality of life. These should be minimal in order to reduce morbidity. A proper rinsing back of the extracorporeal circuit (ECC) at the end of the treatment contributes to this objective, since being a procedure performed on average 156 times/year, in case of waste it has important consequences. Low internal vascular access flow (Qa) leads to low blood rates increasing the risk of ECC coagulation and blood loss.

Objectives

To assess how Qa in grafts influences the final residual blood of ECC.

Methods

- Prospective, observational, descriptive study.
- Over 18 months (May/16 - October/17) we analysed the ECC status after the dialysis session at the patient's bedside.
- 2 groups were created considering Qa: Group I (Qa < 600 mL/min); Group II (Qa ≥ 600 mL/min).
- In both groups, monthly mean heparin dose was analysed. We considered standard heparin dosage cut-off 66 IU/Kg.
- 2 categories were defined to categorize both dialyzer and bloodlines:
 - Dialyzer: 1. Clean/< 10% clotted fibres; 2. ≥ 10% clotted fibres;
 - Bloodlines: 1. Clean; 2. Clots.
- The overall score for visual aspect of ECC (involving both consumables) was obtained when per each month at least 60% of treatments were classified in the same category.

Results

We performed 720 Qa evaluations: 75,6% in Group II. Mean heparin dose in Group I was 50.88 IU/Kg and in Group II was 59,89 IU/Kg. The mean score for visual aspects of the ECC was 1.4 for both groups; this was similar in patients treated with heparin doses below or above the heparin cut-off of 66 IU/Kg.

The correlation between Qa and ECC aspect was very weak, negative but significant [$r = (720) -0.131, p = 0.01$]. Both correlations in graft with Qa < 600 mL/min ($r = 0.20, p = 0.787$) and Qa ≥ 600 mL/min ($r = -0.055, p = 0.199$) were very weak and not significant.

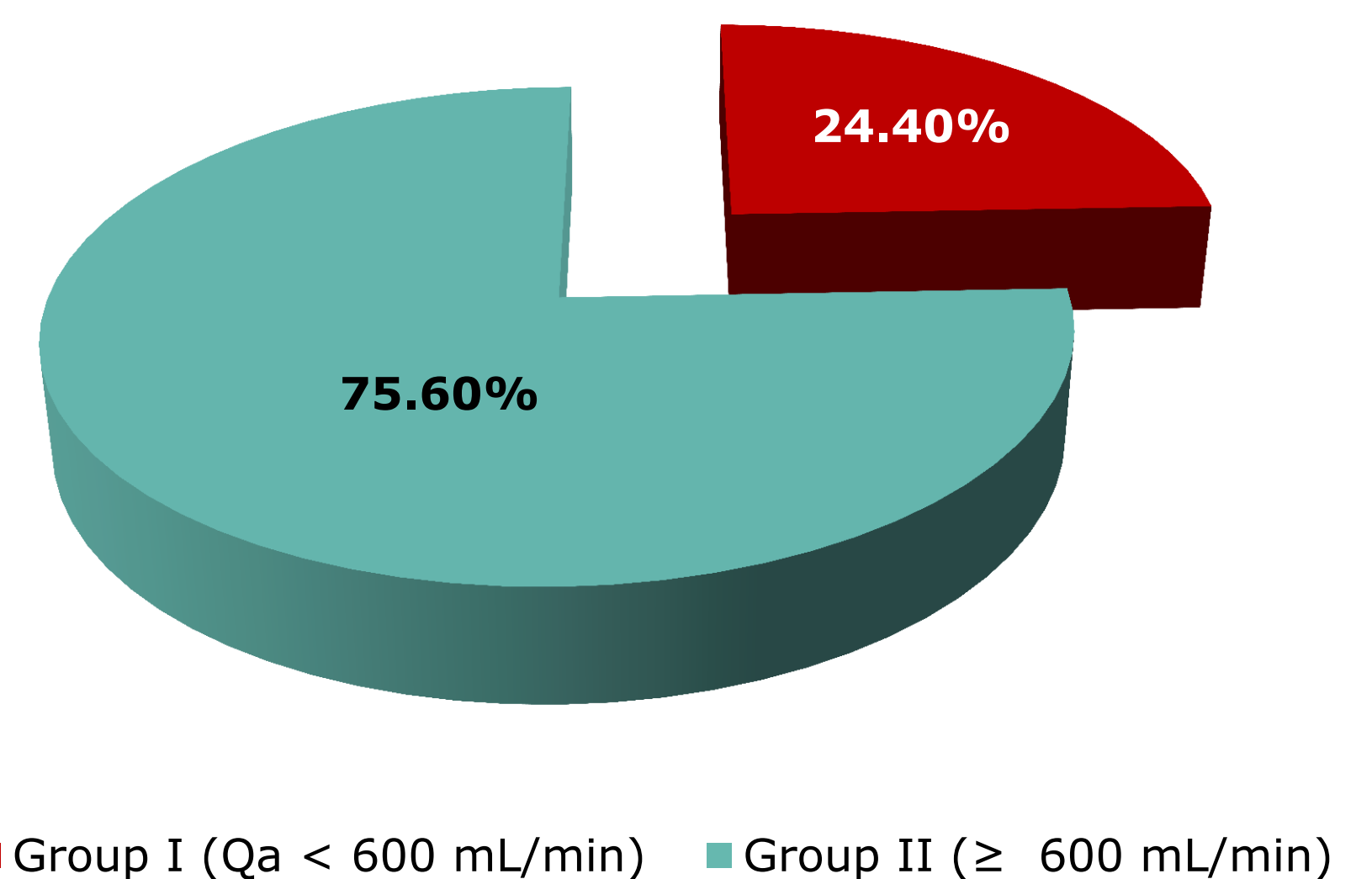
Conclusion

There was no difference in mean of ECC status. A very weak correlation was observed between Qa and blood loss underlining the importance of continuous monitoring these parameters by the nursing team.

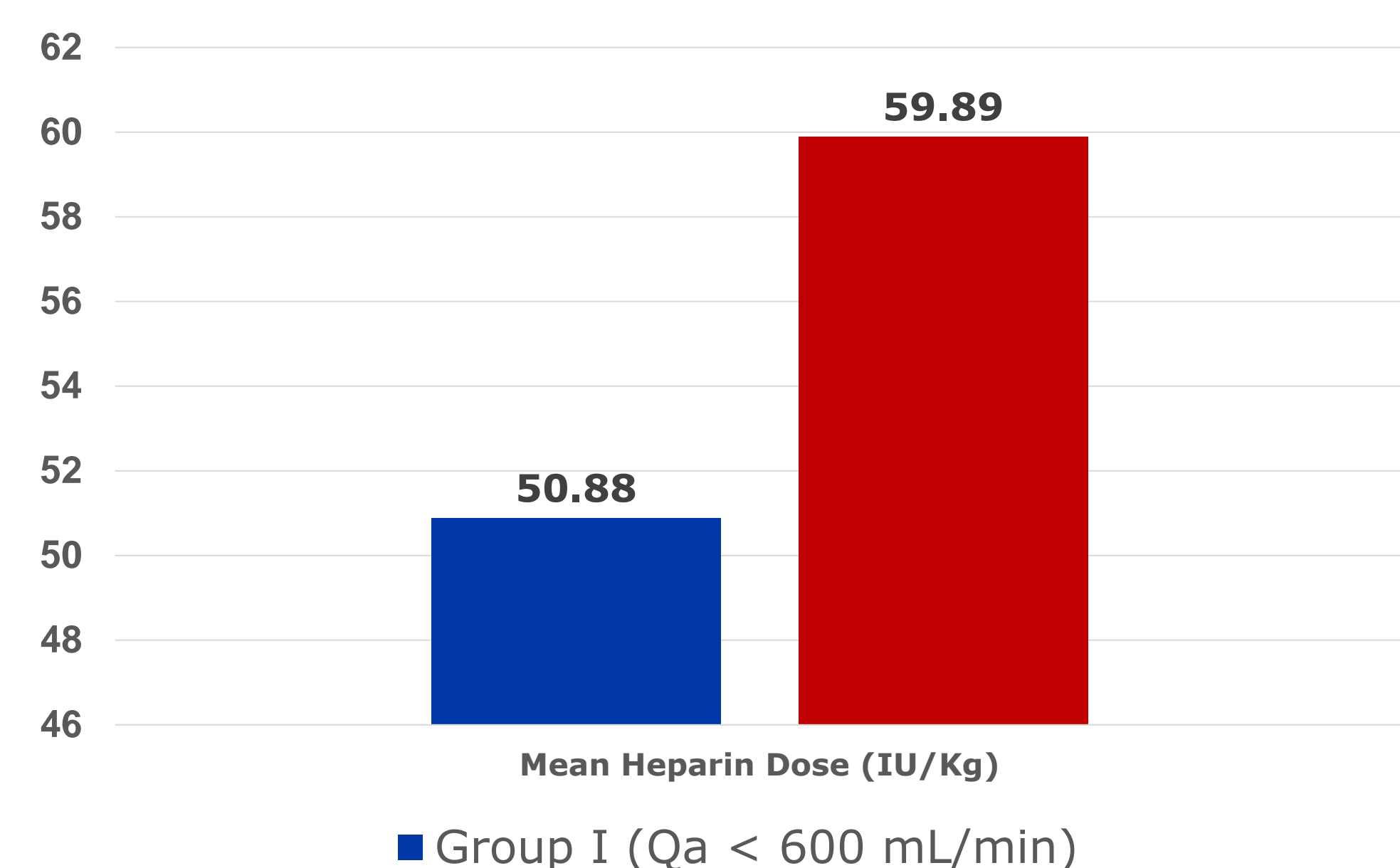
Both groups have mean doses of heparin below the recommended dosage apparently without any impact on the appearance of the ECC.

References

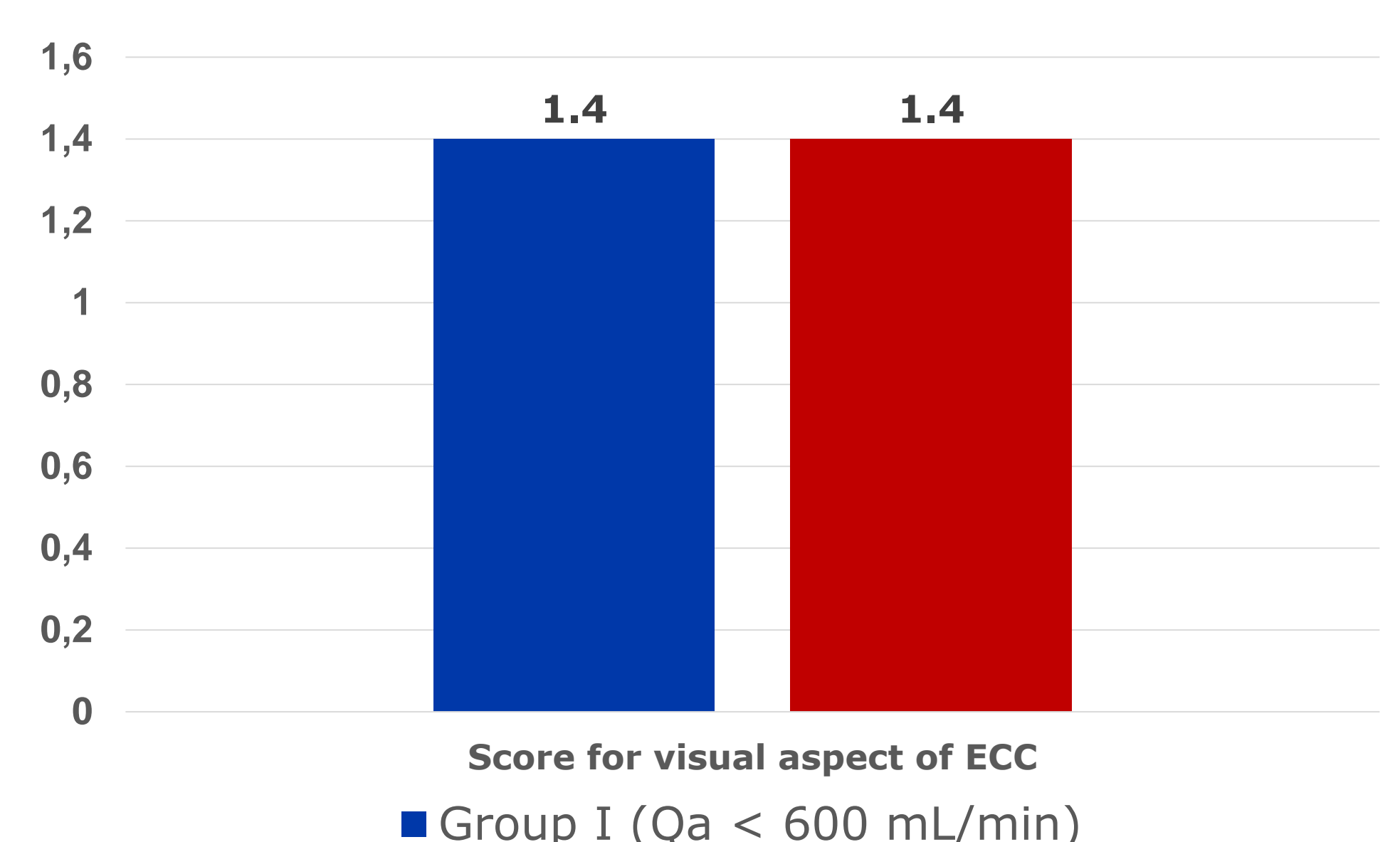
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Graph 1. Patients distribution according to Qa



Graph 2. Mean heparin dose per groups of patients



Graph 3. Score for visual aspect of ECC