

The overhydration status of patients with arteriovenous graft thrombosis.

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Introduction

Arteriovenous Graft (AVG) dysfunction related to stenosis can result in inadequate vascular access (VA) internal blood flow (Qa) resulting in thrombosis, affecting patients (pts) morbidity and mortality.^{1,2} Guidelines recommend frequent monitoring and surveillance.³ Physical examination (PE) has a high accuracy detecting VA dysfunction.⁴ Overhydration (OH) is a complication with increased cardiovascular morbidity and mortality.⁵ Qa evaluation represents a useful indicator and is related to blood volume and hydration status. However, the reasons that facilitate AVG thrombosis are not fully understood.

Objectives

- To identify the predictors of stenosis and thrombosis on AVG.
- To understand hydration status influence in stenosis and thrombosis.

Characteristic	(n= 2314)
Male	54.6 %
Group 1 Qa decrease (<600mL/min)	271 pts
Group 2 Thrombosis	181 pts

Table 1 – Population characteristic

Methods

A retrospective analysis, registry-based, including all patients with AVG, referred to our VA Centre due to: Qa decrease (<600mL/min) (Group 1) and thrombosis (Group 2) from January 1st to October 31, 2018. Comparison between groups was obtained using Wilcoxon-Mann-Whitney test.

Characteristic	Group 1	Group 2	P Value
Diabetics (pts)	133 (49.1%)	65 (35.7%)	(<i>p</i> <0.01).
Stenosis (presence)	267 (98.5%)	132 (99.2%)	
Qa before intervention (mL/min)	472.79 (SD=150.97)	911.29 (SD=433.71)	
Qa after intervention (mL/min)	957.74 (SD=387.01)	1165.58 (SD=517.46)	(<i>p</i> <0.01)
spKt/V before intervention	1.94 (SD=0.03)	1.83 (SD=0.04)	
spKt/V after intervention	2.04 (SD=0.03)	1.94 (SD=0.04)	(<i>p</i> <0.01)
Relative OH (OH/ECW)	7.92% (SD=0.50)	7.61% (SD=0.75)	(<i>p</i> =0.823)

Table 2 - Comparison between groups

Results

From a total of 452 patients (54.6% male), 271 patients were included in group 1 and 181 in group 2. In group 1, 133 (49.1%) had diabetes and in Group 2, 65 (35.7%) (*p*<0.01).

- Stenosis was found on 267 (98.5%) pts in Group 1 versus 132 (99.2%) pts in Group 2.
- Average Qa in Group 1 before intervention was 472.79 mL/min (SD=150.97) versus, in Group 2, 911.29 mL/min (SD=433.71). After intervention respectively 957.74 mL/min (SD=387.01) and 1165.58 mL/min (SD=517.46) (*p*<0.01).
- Average in Group 1 before intervention was 1.94 (SD=0.03) versus, in Group 2, 1.83 (SD=0.04).

After intervention respectively 2.04 (SD=0.03) versus 1.94 (SD=0.04) (*p*<0.01).

Comparing relative OH (OH/ECW) in both groups, in Group 1: 7.92% (SD=0.50) versus in Group 2: 7.61% (SD=0.75) (*p*=0.823).

Conclusion

Results confirm that Qa decrease is a good predictor on AVG dysfunction. However, Qa decrease is not an accurate predictor for thrombosis. In both groups, spKt/V does not anticipate any problem with AVG. Hydration status does not seem to be the trigger for thrombosis. We believe that PE should be the most important tool to complement Qa assessment to identify AVG dysfunction and prevent thrombosis.

References

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