IN SEARCH OF AN OPTIMAL SCREENING PROGRAM for DETECTING STENOSIS and PREDICTING THROMBOSIS in ARTERIOVENOUS GRAFTS

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OBJECTIVES

Guidelines recommend that grafts should be routinely screened for detection and repair of significant stenosis by surveillance tools (Duplex Ultrasound (DU), access blood flow (Qa) and static venous pressure (sVPR) measurement) to reduce the risk of thrombosis and prolong access patency.

They also state that there is insufficient evidence to prefer one technique over another partly because of the lack of studies comparing vis-a-vis all of the options.

To identify an optimal screening program in grafts, we compared in the same population of 66 PTFE grafts (in 51 patients) the diagnostic performance for angiographycally-proven >50% stenosis (StA) and incipient thrombosis (within 4 months) **of the following surveillance tools:**

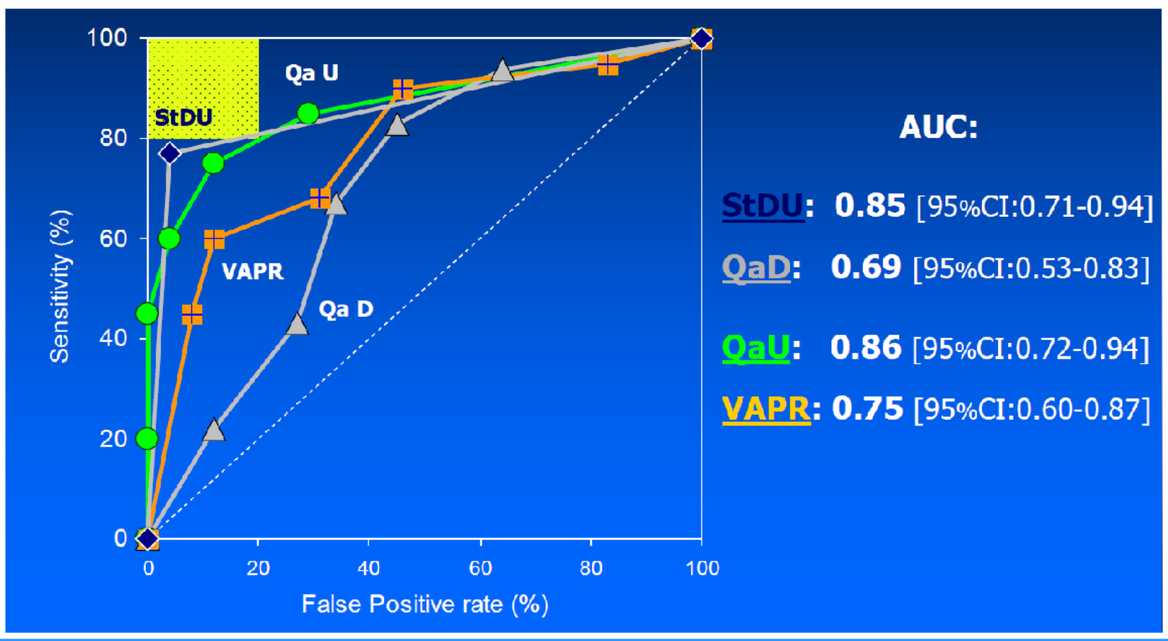
- **Duplex Ultrasound** to detect >50% stenosis (**StDU**) and to measure Qa (**QaD**)
- **Qa** measured by ultrasound dilution using the Transonic HD03 device (**QaU**)
- derived static venous pressure ratio (**VAPR**) according to Frinak

Patient and Graft characteristics

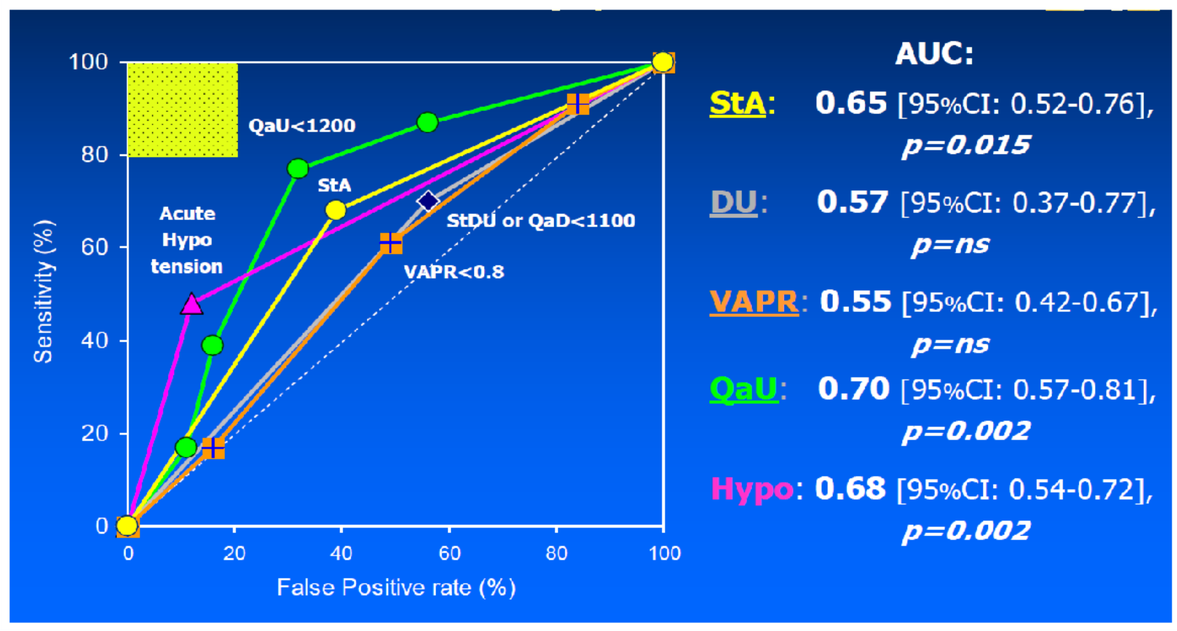
Number of patients	**51**
Male / females	**31 / 20**
Patients age (years)	**70 ± 11**
Proportion of diabetics (%)	**39 %**
Number of grafts	**66**
Graft configuration: straight / loop	**52 / 14**
Graft age (months)	**14 ± 11**
Prevalence of >50% stenosis at angiography (%)	**50 %**

RESULTS

Diagnostic performance for angiographycally-proven >50 % stenosis



Diagnostic performance for incipient thrombosis (within 4 months)

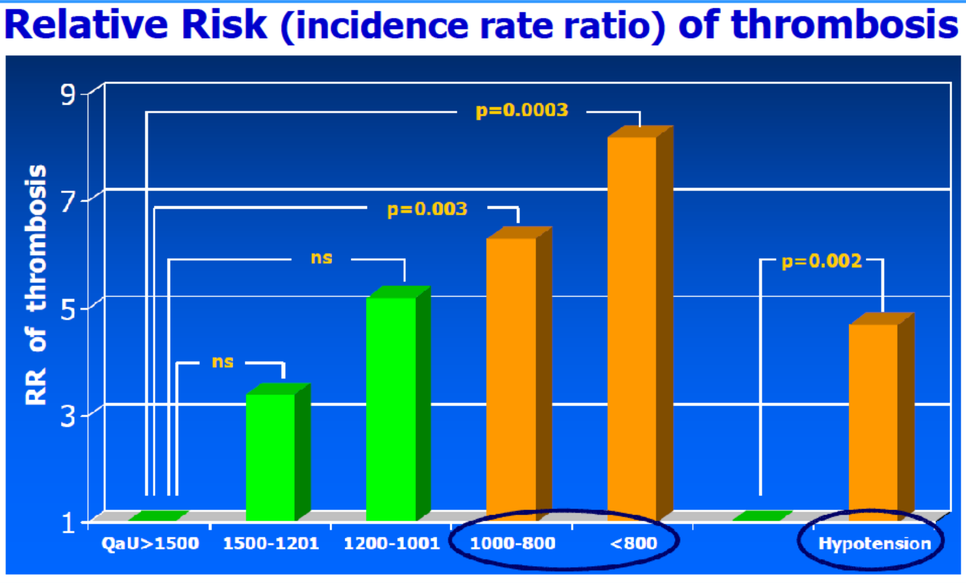


At logistic regression analysis (in a model including gender, diabetes, graft age, significant stenosis, QaU, VAPR, and acute hypotensive episode/s during the follow-up as explanatory variables) **the only significant and independent predictors of thrombosis were:**

QaU, with a 23% [95% CI: 5 - 42] higher adjusted odd of access clotting for each 100 ml/min drop in access blood flow (p=0.007),

Hypotension, with a 10-fold [95% CI: 2 - 47] higher adjusted odd of access clotting (p<0.001).

Relative Risk (incidence rate ratio) of thrombosis



CONCLUSIONS

Our comparative study suggests that in PTFE grafts:

an effective screening program may be based on ultrasound dilution Qa surveillance only, because of its good performance for detecting stenosis and predicting incipient thrombosis

the risk of thrombosis may be contained by referring grafts for evaluation and treatment when Qa drops below 1000 ml/min, and

avoiding acute hypotensive episodes

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