

# CT Angiography and Magnetic Resonance Angiography The nephrologist's opinion



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**Is there a place for Computed Tomography Angiography (CTA) and Resonance Magnetic Angiography (RMA) in the vascular access monitoring strategy?**



# Vascular access monitoring

- Objective : to detect functional stenoses exposing to thrombosis
- Tool : Monthly VA blood flow measurement

Referential KDOQI 2006

Arterio –venous fistula

VABF < 400–500 ml/mn

Arterio –venous graft

VABF < 600 ml/mn





**Is Gadolinium a safe contrast agent ?**



# Gadolinium is nephrotoxic

91 patients (renal failure stage 3 and 4) – MRA 0.2 mmol/kg  
Acute renal failure : 11/91 = **12.1%**

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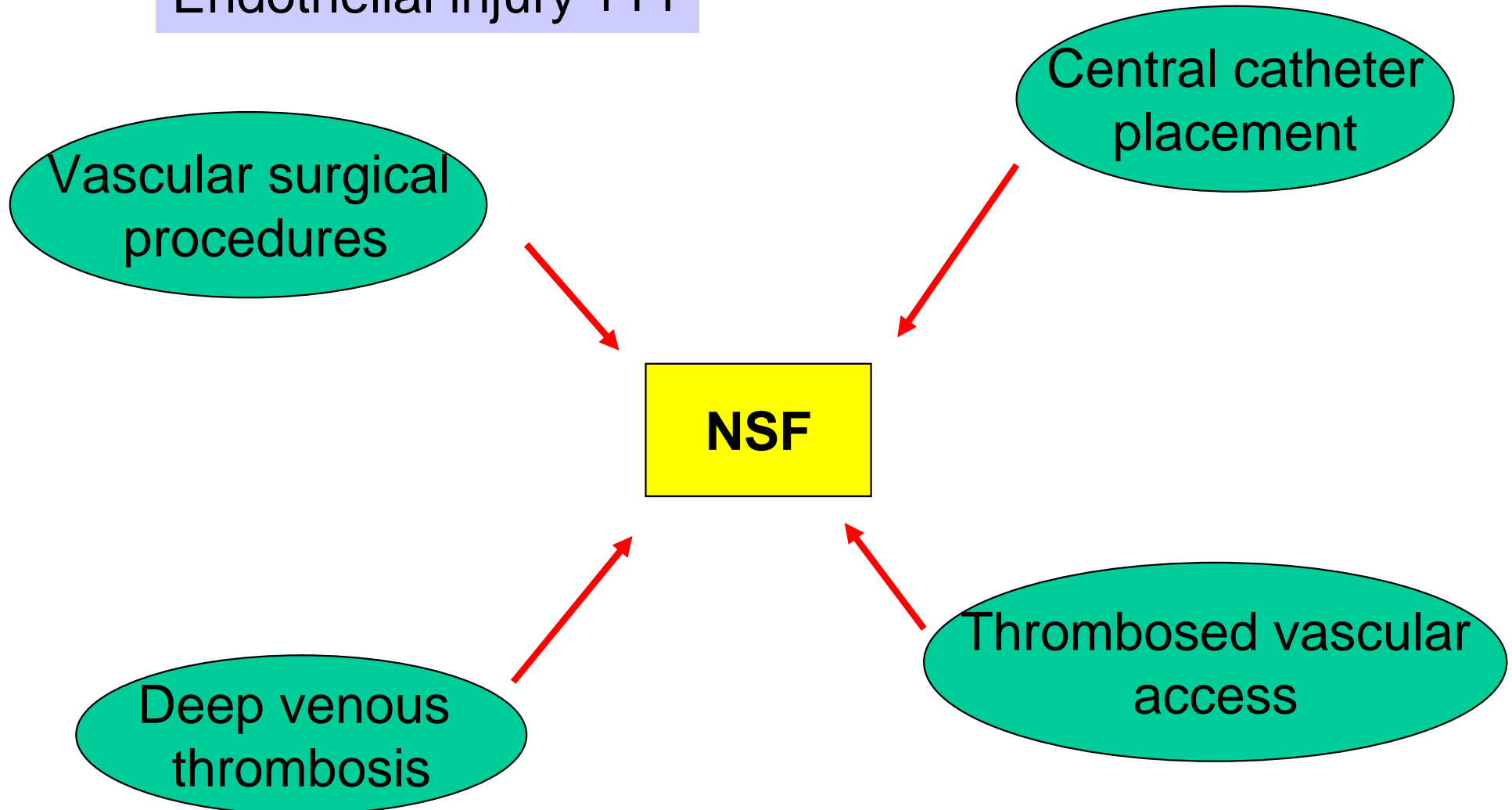
	ARF (n=11)	non-ARF(n=80)	p
Age (years)	<b>72</b>	56	0.0014
Baseline eGFR (ml/mn)	<b>16</b>	33.5	0.001
Albumin (g/dl)	<b>3</b>	3.4	0.0014
Haemoglobin(g/dl)	<b>9.5</b>	11	0.011
Diabetic Nephropathy (%)	<b>6.5</b>	13.1	0.007



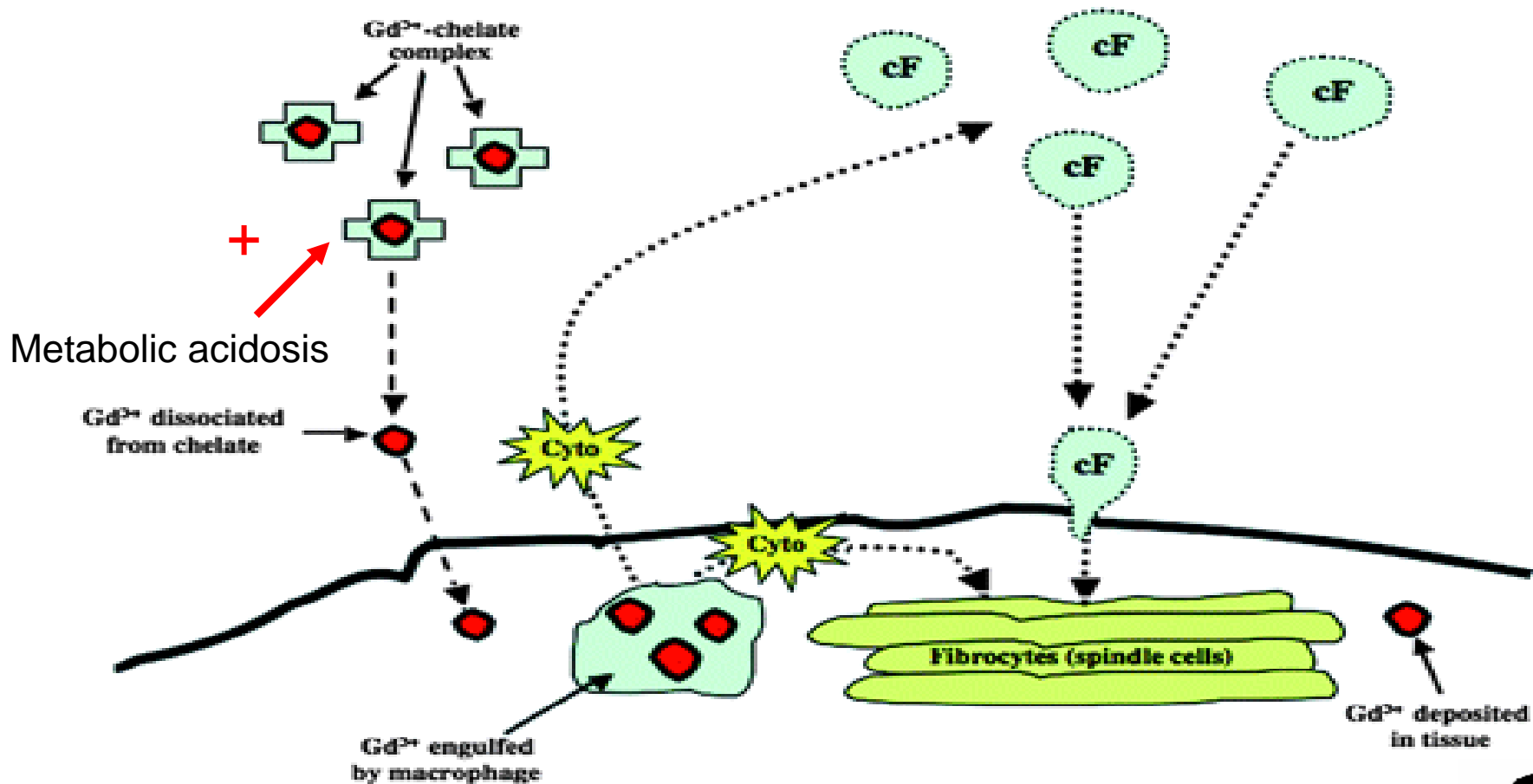


# Risk factors of NSF

Endothelial injury +++



# Gadolinium: a trigger for the development of NSF ?





**Are CTA and MRA the best friends of  
superficial veins ?**



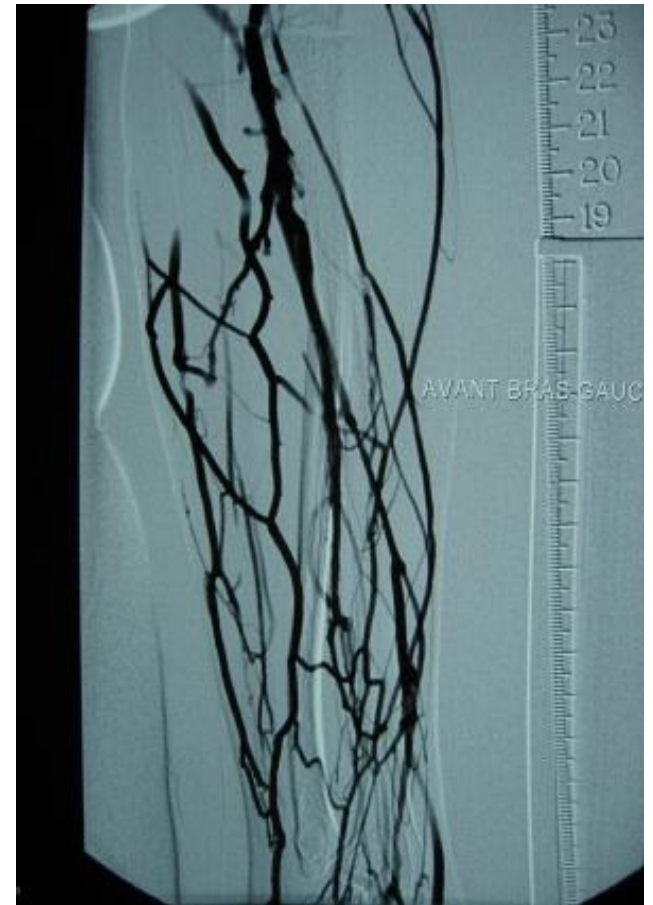
# Rule number 1



Radio-cephalic fistula



# Rule number 2



17 G plastic needle  
Contralateral arm +++

# Conclusion

- Compared to DSA, CTA and MRA do not combine angiography with endovascular intervention
- Gadolinium should be used only if clearly necessary in patients with advanced kidney failure, because of the risk of NSF
- CTA and MRA are aggressive for the superficial veins