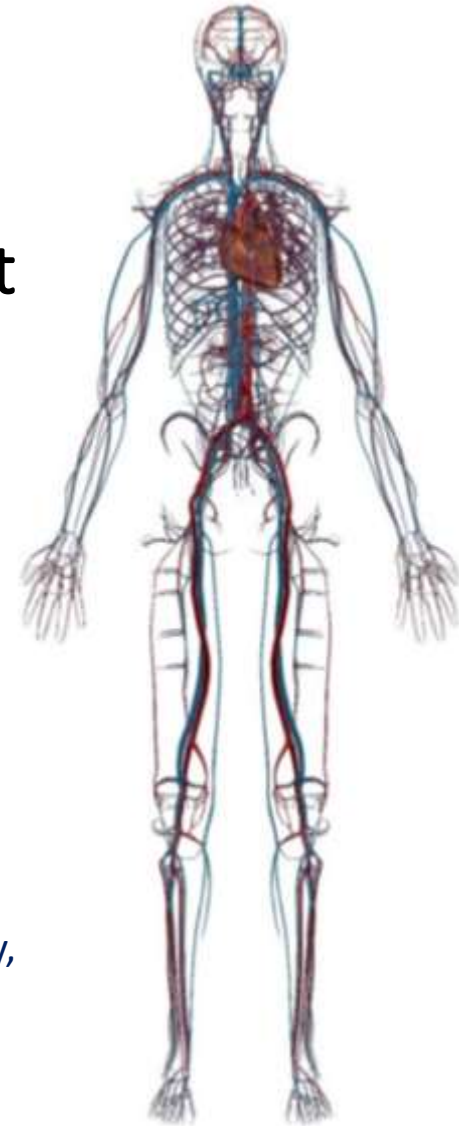


The incidence and risk factors  
of **coronary steal** after ipsilateral AVF  
in patients with a coronary artery bypass graft



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# BACKGROUND

- Venturi effect

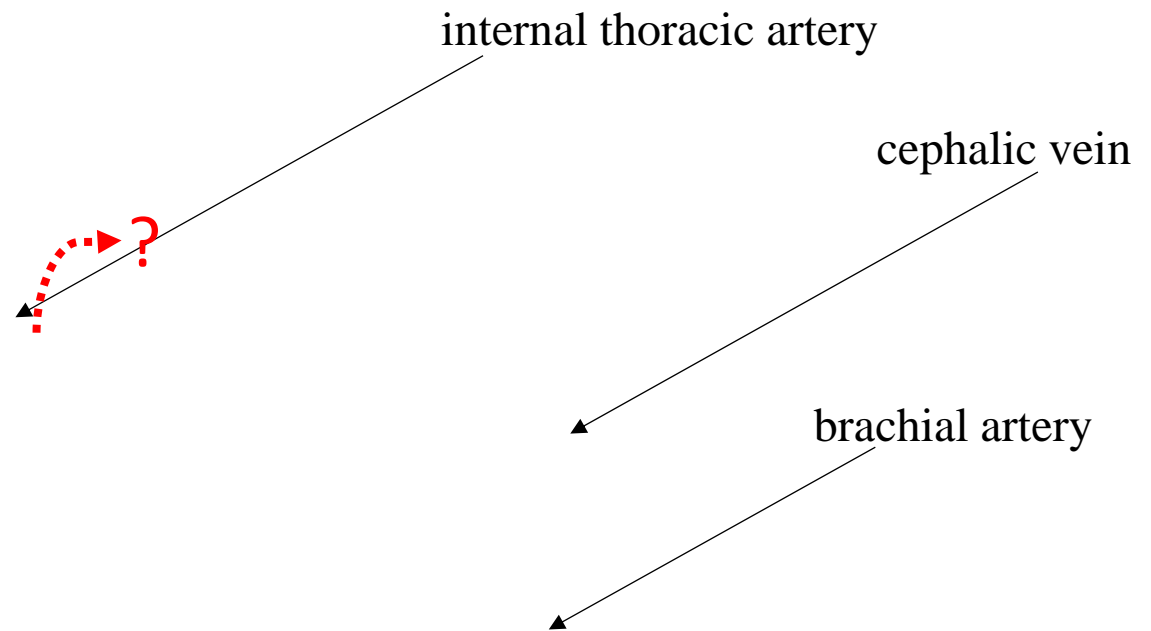
Entrained fluid



Constriction

# BACKGROUND

? **Coronary steal** after ipsilateral AVF

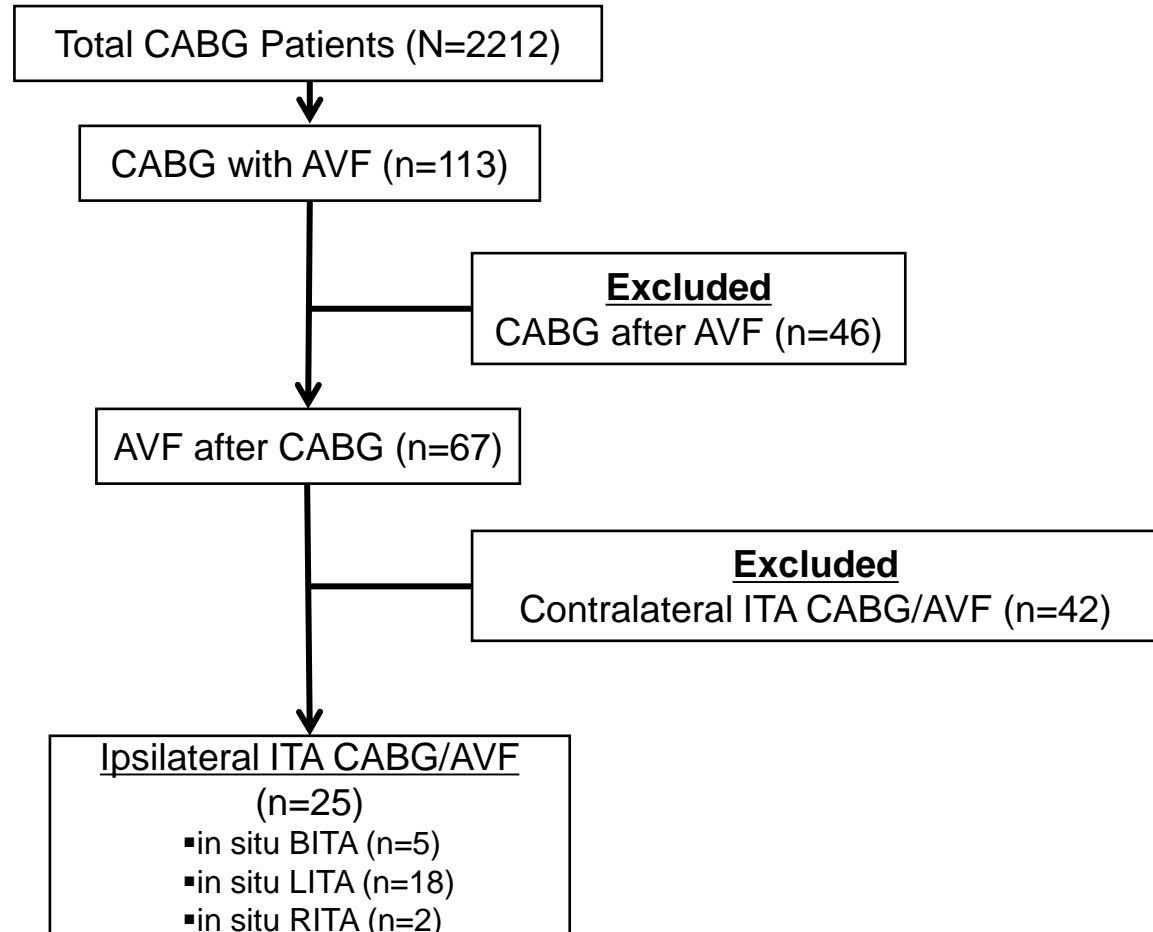


# PURPOSE

- To investigate the **incidence** of coronary steal after ipsilateral arm AVF creation in patients underwent CABG
- To analyze the **risk factors** for coronary steal
- To provide long-term outcome in patients with ipsilateral AVF

# METHODS

- Jan 2000 – Dec 2013, Observational, retrospective study



# Definition of steal syndrome

## ■ AVF related Coronary Steal

- Newly development of one or more the symptoms\* occurrence within 12 weeks after AVF creation
- \*Chest pain, chest discomfort, or dyspnea, especially aggravated during hemodialysis

# Patient demographics (N=25)

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## Variables

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Sex (M:F)	16 (64%) : 9 (36%)
Age at CABG (year)	63.9 ± 9.2
Age at AVF (year)	68.0 ± 9.1
Hypertension	21 (84%)
Diabetes Mellitus	19 (76.0%)
Follow up (month)	85.4 ± 54.6 (97 median, range 4-174)
CABG type	
LITA	18 (72%)
RITA	2 (8%)
BITA	5 (20%)
Fistula type	
RC	10 (40%)
BC	10 (40%)
AVG (forearm loop)	4 (16%)
Forearm basilic vein transp. AVF	1 (4%)

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# Clinical data for patients with coronary steal(n=3)

Pts	Sex	Age at CABG	age at AVF	RWMA	EF(%)	AVF type	Sx occurrence after AVF (days)	Treatment	Symptom
1	M	57	58	Yes	35	RC	84	ligation	Improved
2	F	75	75	Yes	45	BC	1	ligation	Improved
3	F	77	77	Yes	45	RC	52	ligation	Unknown (f/u loss)



# Coronary Steal (n = 3)

	steal (+) n = 3	steal (-) n = 22	P value
Age at CABG	69.7 ± 11.0	63.1 ± 9.0	0.206
Age at AVF	70.0 ± 10.4	67.7 ± 9.1	0.723
LVEF <sup>§</sup>	<u>41.7%</u>	50.9%	<b>0.036</b>
RWMA <sup>§</sup>	3 ( <b>100%</b> )	10 (45.5%)	0.220
Reversible perfusion defect <sup>¥</sup>	1 (33.3%)	8 (36.4%)	0.474
Fistula type			0.565
Forearm*	2 (66.7%)	9 (40.9%)	
Upper-arm	1 (33.3%)	13 (59.1%)	
CABG type			1.000
LITA	3 (100%)	15 (68.2%)	
RITA	0	2 (9.1%)	
BITA	0	5 (22.7%)	

<sup>§</sup>on echocardiography before AVF, <sup>¥</sup>on myocardial scan before AVF

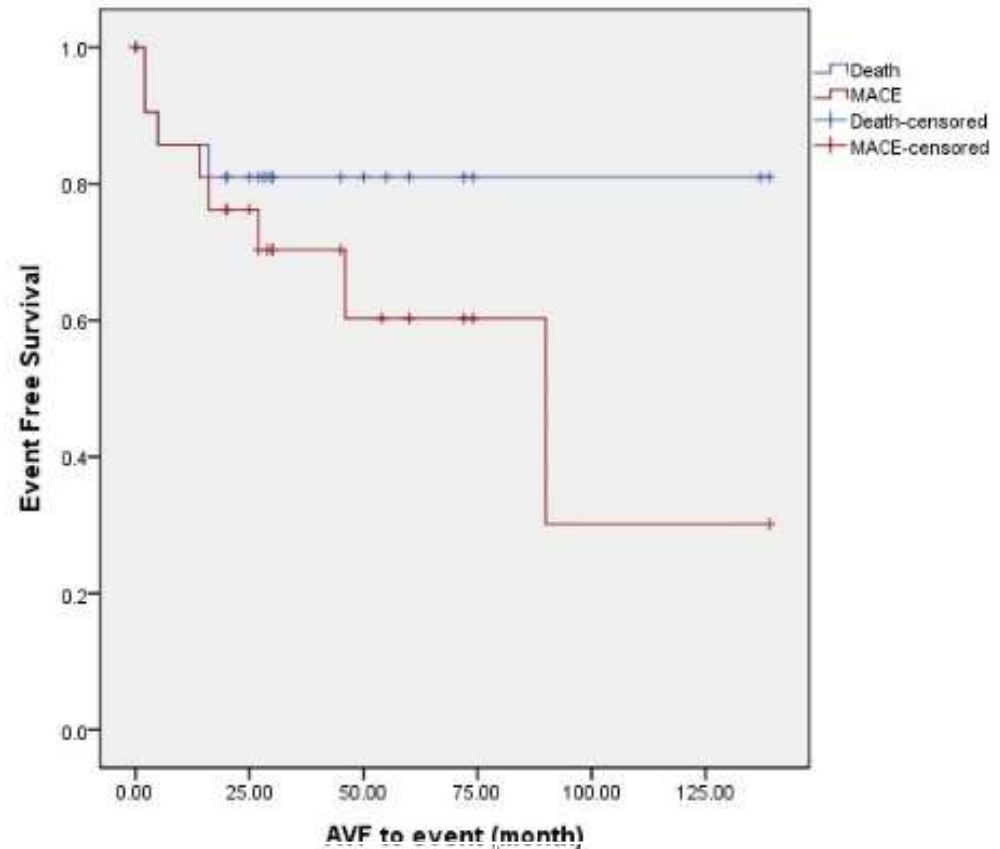
\* Forearm: RC + basilica vein transposition AVF, Upper-arm: BC + forearm loop AVG

# Death and MACE in patients with ipsilateral AVF (n = 22)

■ Median follow-up was  $90.9 \pm 54.2$  months

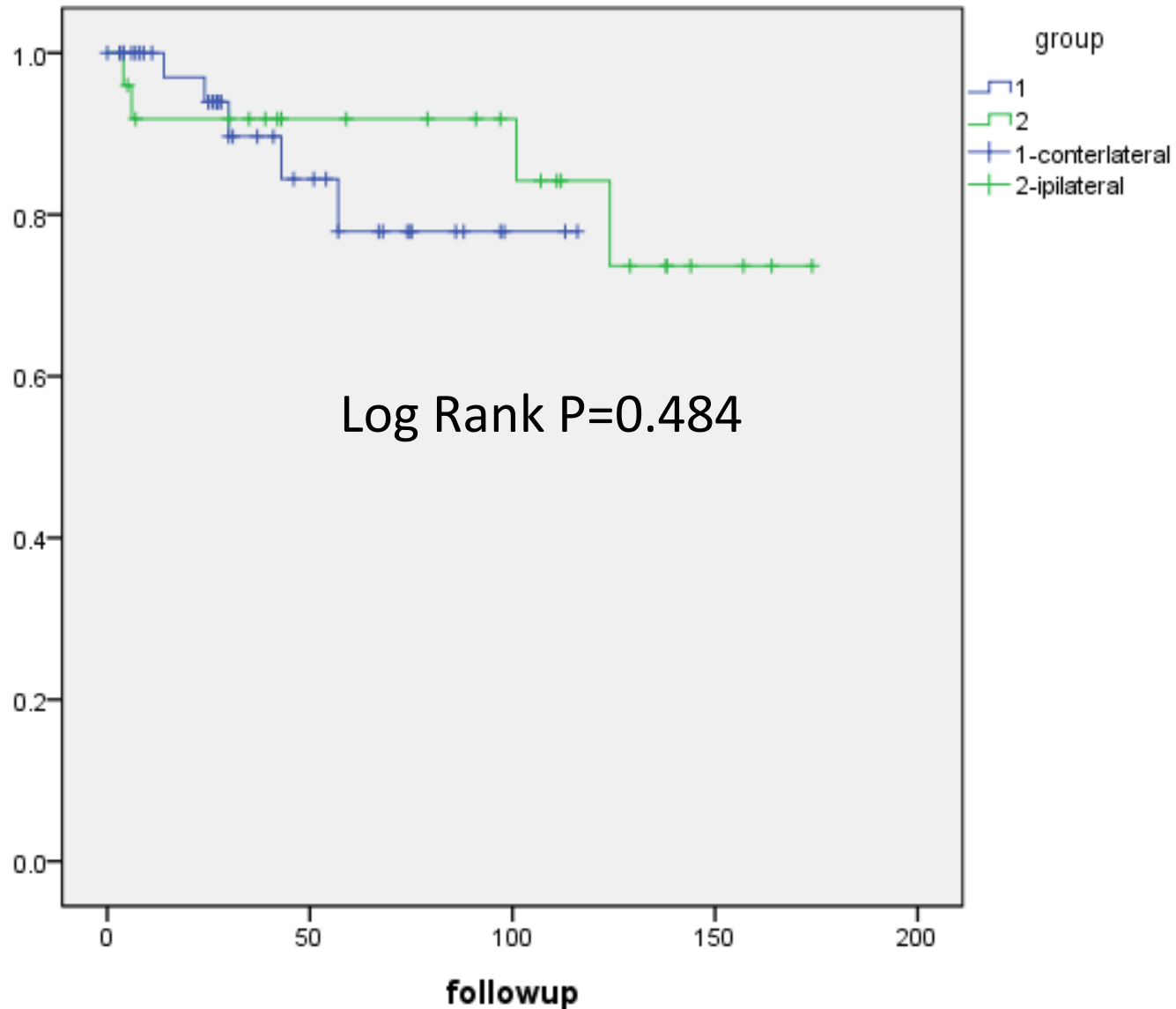
■ Cause of death (4)

- Meningitis
- Pneumonia
- CHF
- rAAA



Death	22	15	7	2	2	2
MACE	22	14	6	2	1	1

# Comparison of Ipsi-AVF with Contralateral-AVF on MACE



# CONCLUSION

- Incidence of coronary steal and consequent ischemic symptoms were **12%**, which could be related to **low LVEF**.
- But long term adverse event in patients without coronary steal related symptoms was comparable with that of patients with contralateral AVF
- In patients with CABG requiring AVF for HD, the ipsilateral fistula to the grafted ITA should be carefully selected and observed.

Entrained fluid

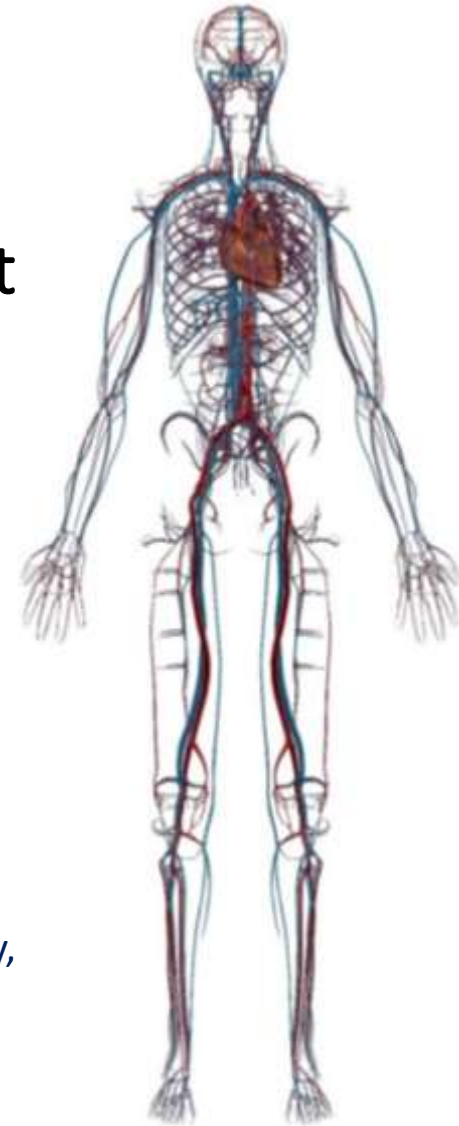


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# THANK YOU FOR YOUR ATTENTION



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