



L'utilisation de la voie artérielle radiale par le cardiologue peut-elle compromettre la création d'une fistule ?

Potential radial artery injury with radial access

- Spasm
- Severe complication (compromized artery)
 - Dissection
 - Perforation
 - Hematoma
 - Pseudoaneurysm
 - Arteriovenous fistula
- Radial artery occlusion
 - Hand ischemia
 - Asymptomatic

Radial Artery Spasm

- Méta-analyse 22 études
- **Incidence 8%**
- Facteurs favorisants : Femme, jeune âge, tabagisme
- Résolutif sous vérapamil \pm nitrés \pm N₂O+O₂
- Pas de majoration du risque de thrombose

Kwok CS, Rashid M, Fraser D, et al. Intra-arterial vasodilators to prevent radial artery spasm: a systematic review and pooled analysis of clinical studies. Cardiovasc Revasc Med 2015;16:484-90.

Severe immediate vascular complications

RIVAL	Radial (n=3507)
Major vascular complications at 30 days	
Large haematoma	42 (1.2%)
Pseudoaneurysm needing closure	7 (0.2%)
Arteriovenous fistula	0 (0%)
Ischaemic limb needing surgery	1 (0%)*

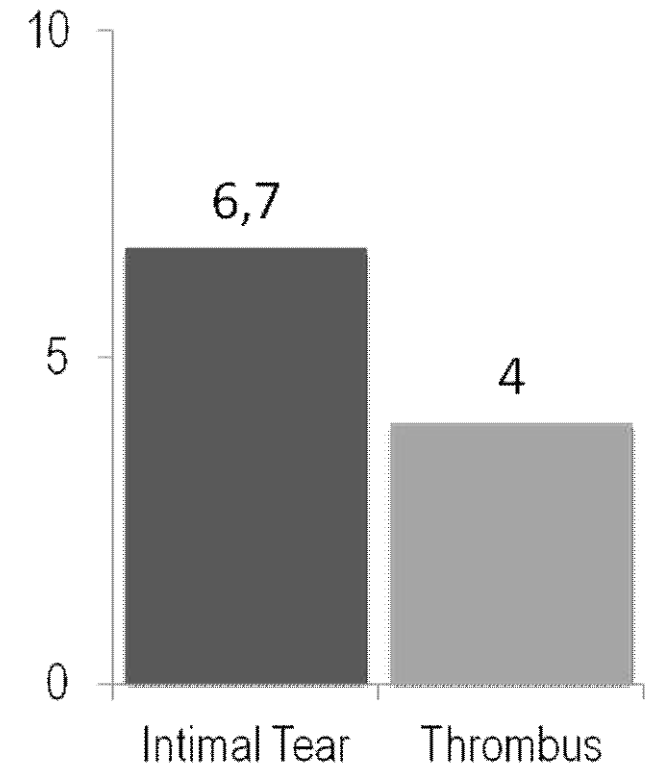
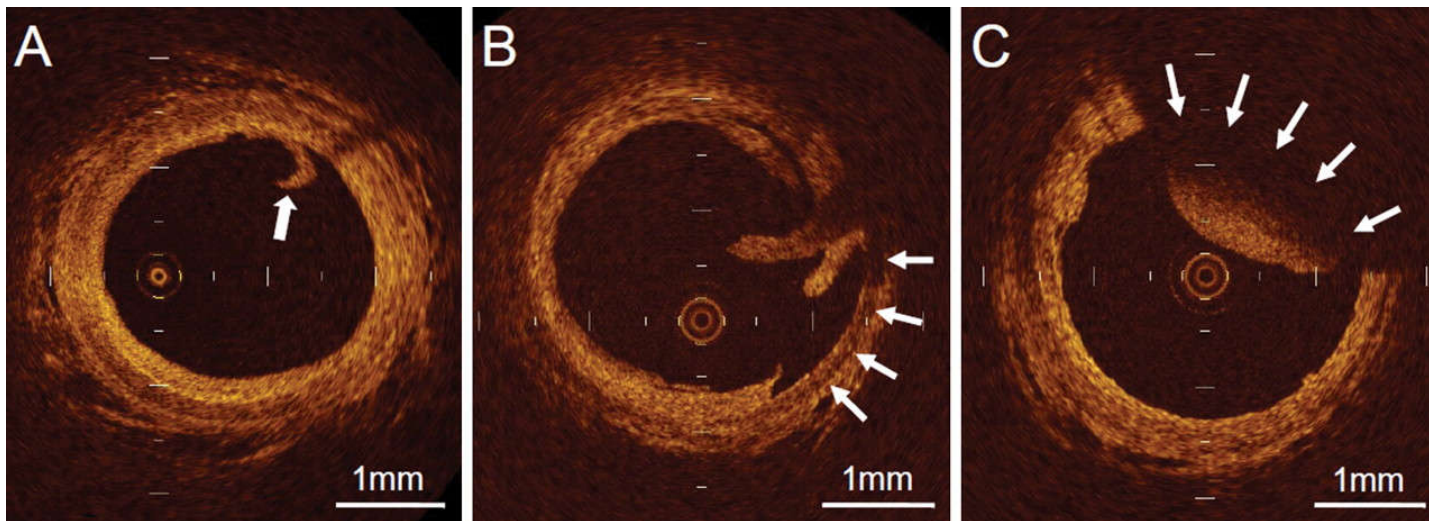
Jolly & al. *Lancet* 2011; 377: 1409–20

MATRI X	Radial access (n=4197)
Composite of surgical access site repair or blood products transfusion	41 (1.0%)
Surgical access site repair	4 (0.1%)‡

Valgimigli & al. *Lancet* 2015; 385: 2465–76

Radial artery injuries secondary to radial access

Acute injuries assessed by in optical coherence tomography imaging



Radial Artery Occlusion

Radial Artery Occlusion After Transradial Interventions: A Systematic Review and Meta-Analysis

Methods and Results—We searched MEDLINE and EMBASE for studies of RAO in transradial access. Relevant studies were identified and data were extracted. Data were synthesized by meta-analysis, quantitative pooling, graphical representation, or by narrative synthesis. A total of 66 studies with 31 345 participants were included in the analysis.

Table 3. Exclusion of Studies Without Ultrasonic Assessment of RAO

Group	No. of Studies	RAO Events	Total	Mean%	SD%	95% CI Margin
RAO at 1 day	12	360	5349	6.73	5.06	0.14
RAO at 2 to 6 days	7	126	1261	9.99	3.55	0.2
RAO at 7+ days	17	365	5721	6.22	6.47	0.17

Incidence of RAO

→ within 24 hours

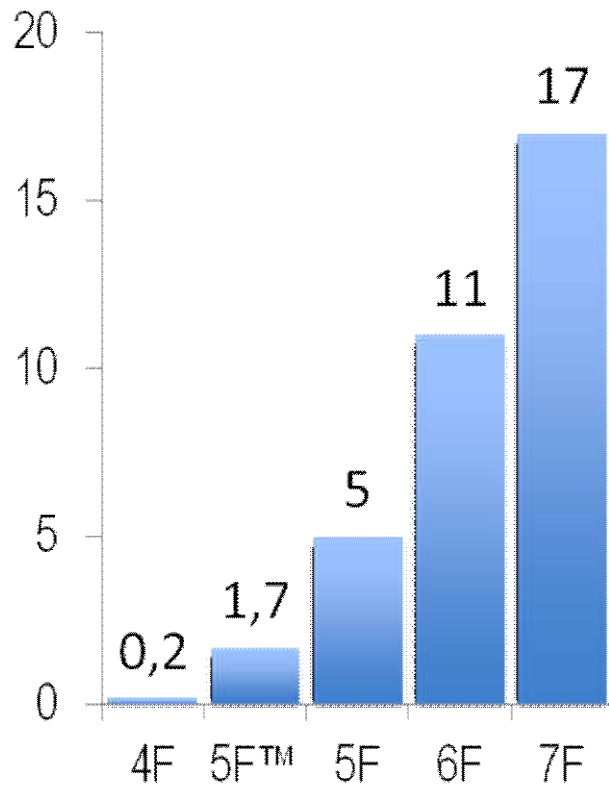
7.7%

→ after 1 week

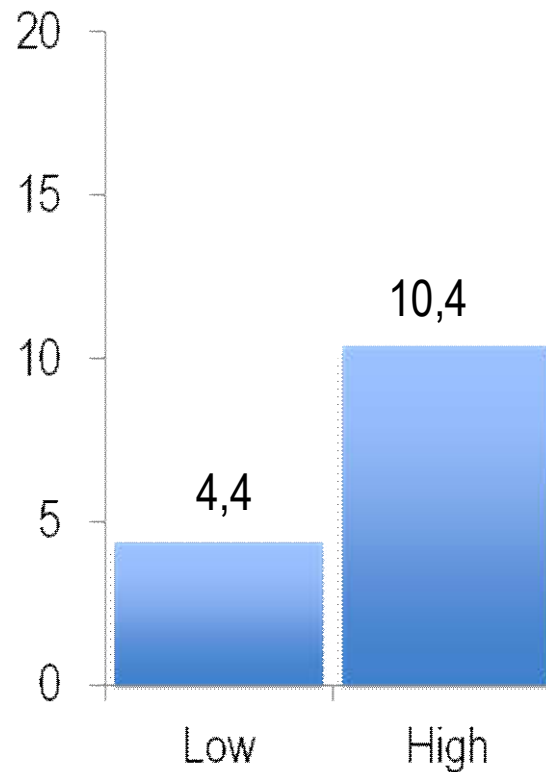
5.5%

How to decrease radial thrombosis ?

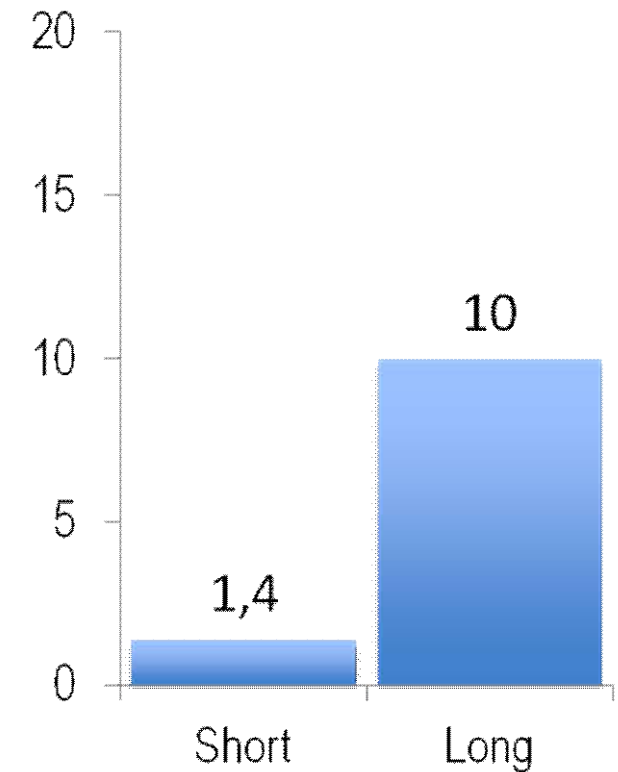
- Smaller catheter



- High dose heparin

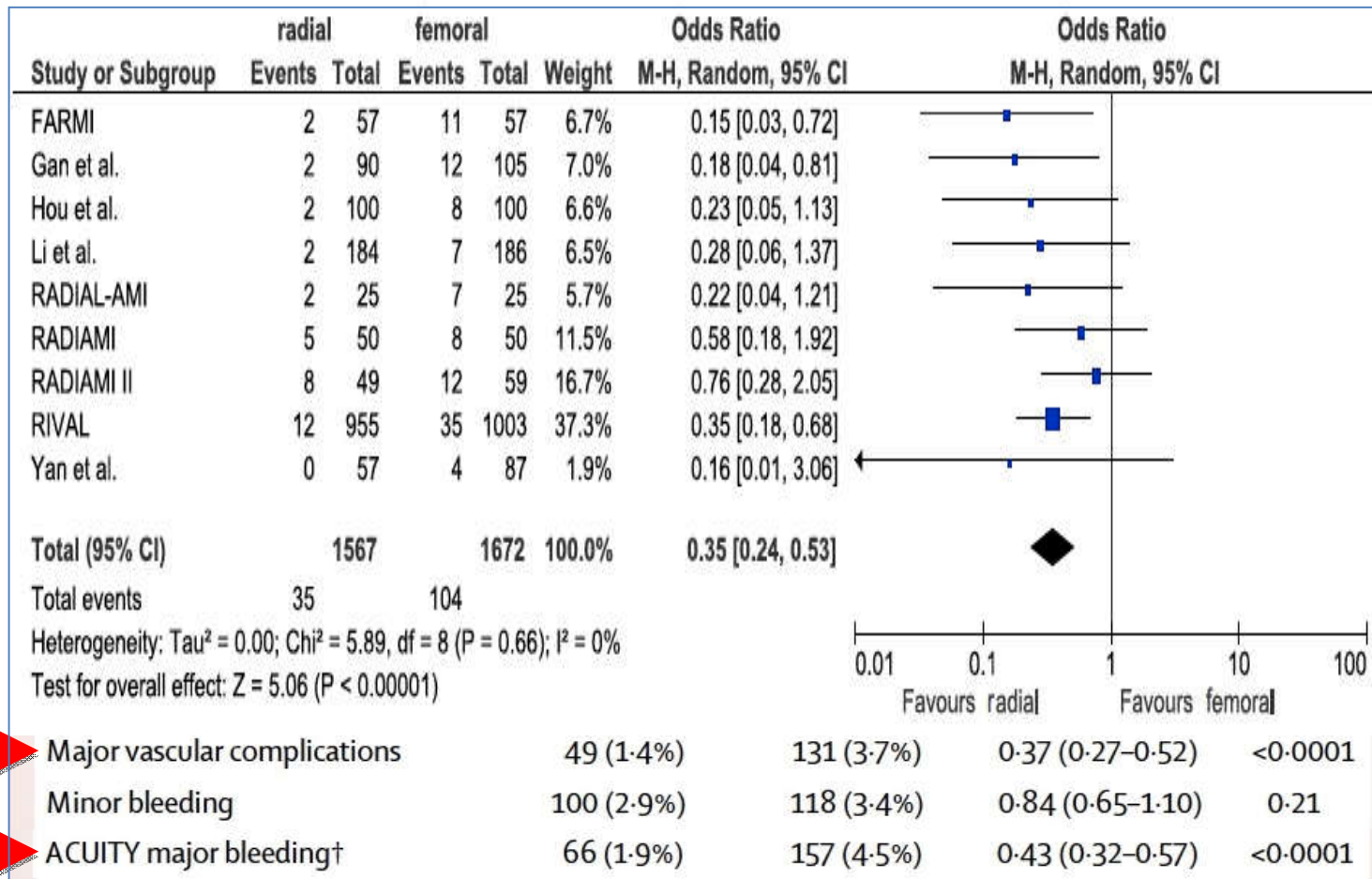


- Short compression time



Mais pourquoi donc la voie radiale ?

RIVAL & Meta-analyse : Vascular complications + bleedings



MATRIX Study – Radial access in acute coronary syndroms

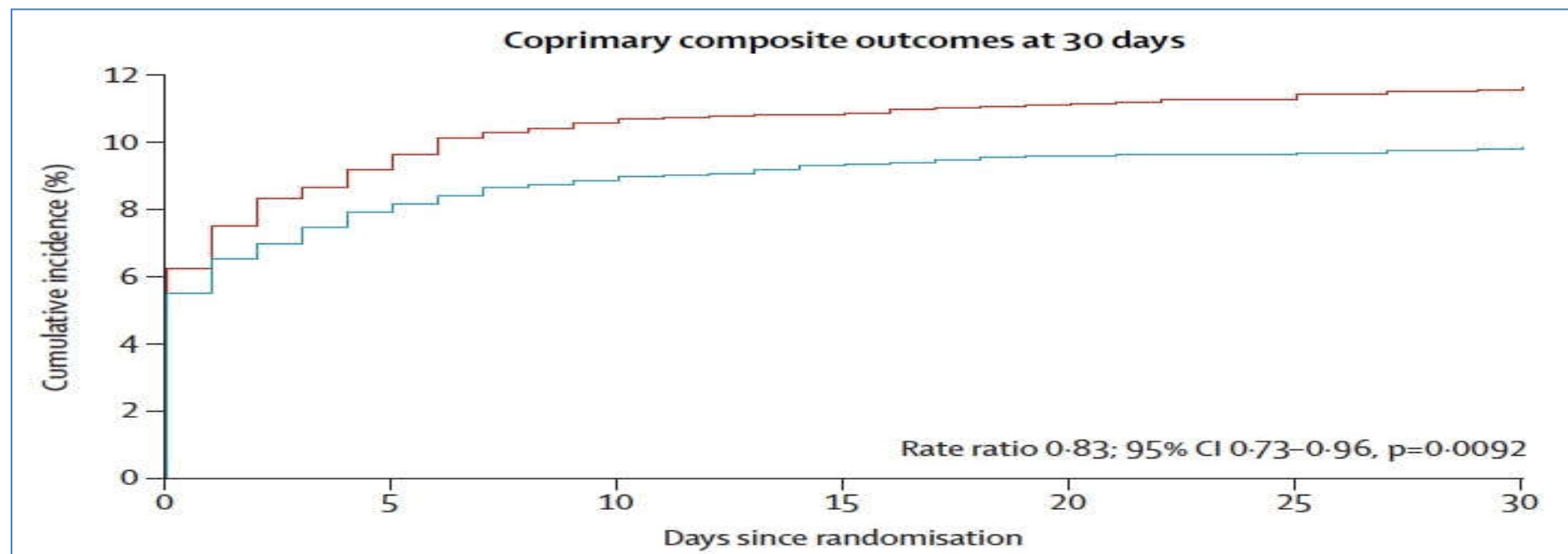
- 8404 pts avec SCA randomisés voie radiale : voie fémorale
- 48% ST + / 52% non ST+

	Radial access (n=4197)	Femoral access (n=4207)	Rate ratio (95% CI)	p value
Adjudicated events				
Coprimary composite of all-cause mortality, myocardial infarction, or stroke	369 (8.8%)	429 (10.3%)	0.85 (0.74–0.99)	0.0307
Coprimary composite of all-cause mortality, myocardial infarction, stroke, or BARC 3 or 5 bleed	410 (9.8%)	486 (11.7%)	0.83 (0.73–0.96)	0.0092
Composite of all-cause mortality, myocardial infarction, stroke, urgent TVR, definite stent thrombosis, or BARC 3 or 5 bleed	419 (10.0%)	491 (11.8%)	0.84 (0.74–0.97)	0.0142
All-cause mortality	66 (1.6%)	91 (2.2%)	0.72 (0.53–0.99)	0.0450

Interpretation In patients with acute coronary syndrome undergoing invasive management, radial as compared with femoral access reduces net adverse clinical events, through a reduction in major bleeding and all-cause mortality.

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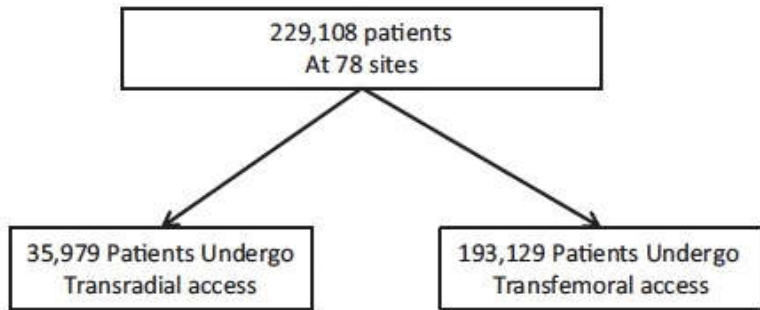


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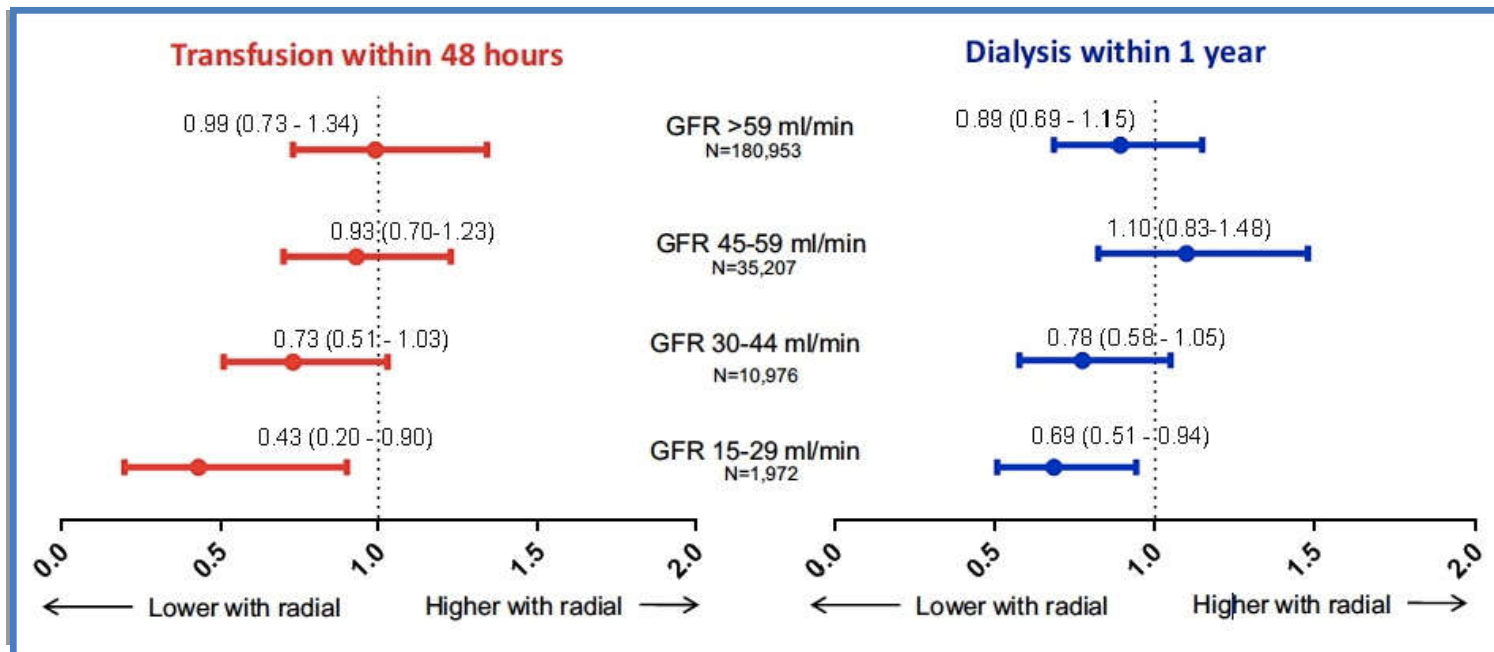
Meta-analysis of 16 studies with 777.841 patients > 70 ans

(%)	Radial	Femoral	OR	P
Vascular complications				
Observational studies	0.4	0.8	0.36 [0.30-0.34]	0.01
RCTs	2.7	7.0	0.37 [0.23-0.60]	0.01
Stroke				
Observational studies	0.3	0.4	0.81 [0.66-1.00]	0.02
RCTs	0.4	1.4	0.31 [0.10-0.97]	0.04
Death				
Observational studies	2.0	2.2	0.51 [0.41-0.63]	0.02
RCTs	3.3	2.8	1.20 [0.69-2.09]	NS
Death STEMI patients	5.0	7.0	0.48 [0.25-0.90]	0.02

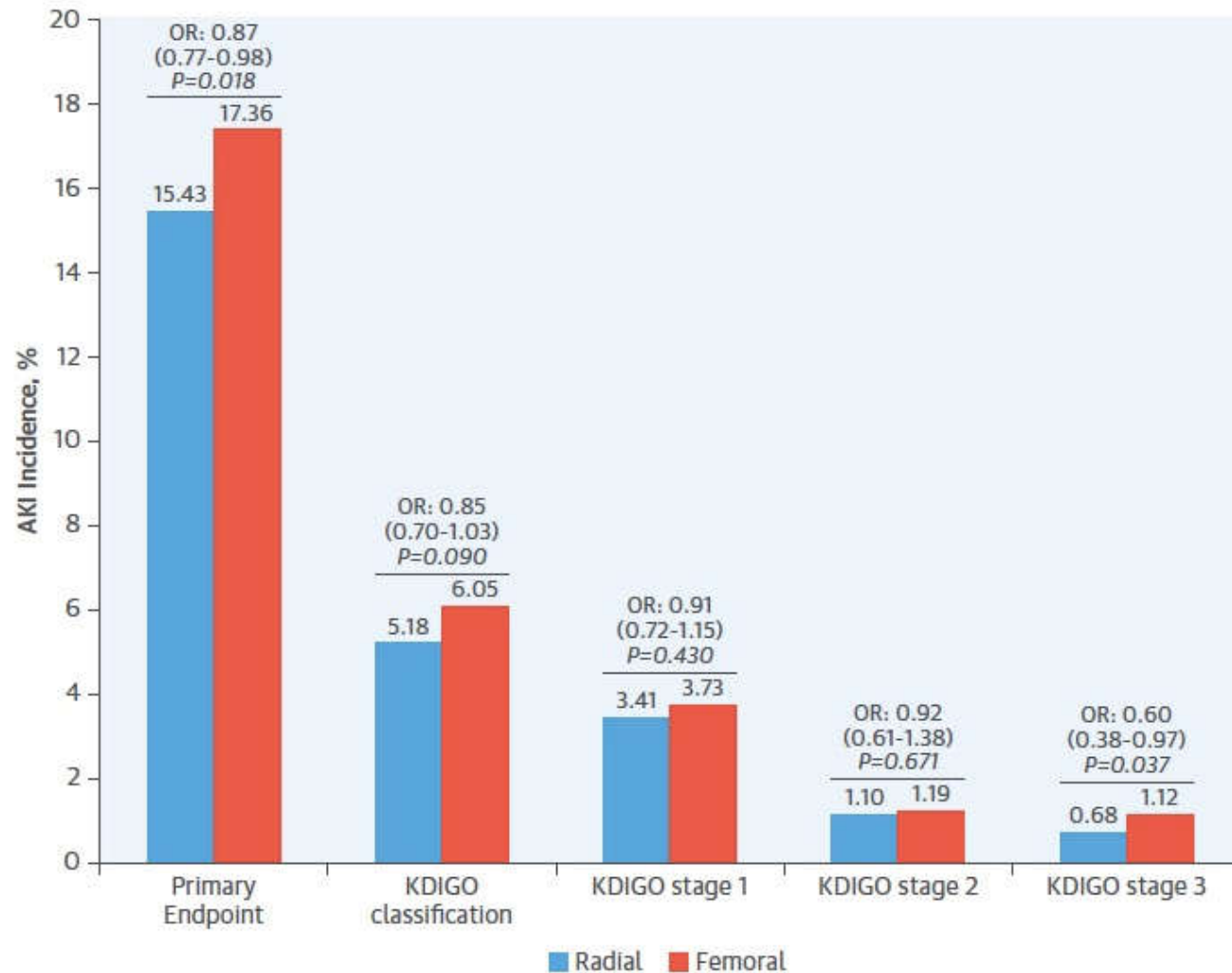
Association Between Chronic Kidney Disease , Rates of transfusion, and Progression to End-Stage Renal Disease in Patients Undergoing Transradial Versus Transfemoral Cardiac Catheterization



	Radial	Femoral	P
Fluoroscopy times (min)	7.2	6.0	0.001
Contrast use (mL)	85	100	0.001
48H-transfusion (%)	0.85	1.01	0.01
1Y- new dialysis (%)	0.58	0.71	0.02



MATRIX : AKI substudy



These data provide additional evidence that transradial access may provide significant benefit in this high-risk population and may be considered when selecting an access site for CKD patients undergoing PCI

however, prospective, randomized trials in this population are needed to confirm our findings



Recommandations



2011

« Radial approach should be preferred over femoral access in patients at high risk of bleeding, provided the operator has sufficient experience »



2014

Radial access should be preferred over femoral access if performed by an experienced radial operator.

IIa

A



2015

Radial over femoral access is recommended for coronary angiography and PCI.

I

A

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- Il est possible de diminuer le taux de complications vasculaires :
 - Expérience de l'opérateur
 - Cathéter 4F ou 5F sheathless
 - Héparinothérapie per-procédure
 - Compression artérielle basse pression + courte durée
 - Ne pas ponctionner l'artère controlatérale en cas d'échec → convertir en fémoral

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- Le rapport bénéfice risque de la voie radiale est établie
 - Diminution des complications vasculaires notamment hémorragiques et des AVC
 - Préservation de la fonction rénale chez l'IR avancé (?)
 - Diminution de la mortalité dans les essais randomisés radiale vs. fémorale surtout dans les SCA
 - Indication de classe IA

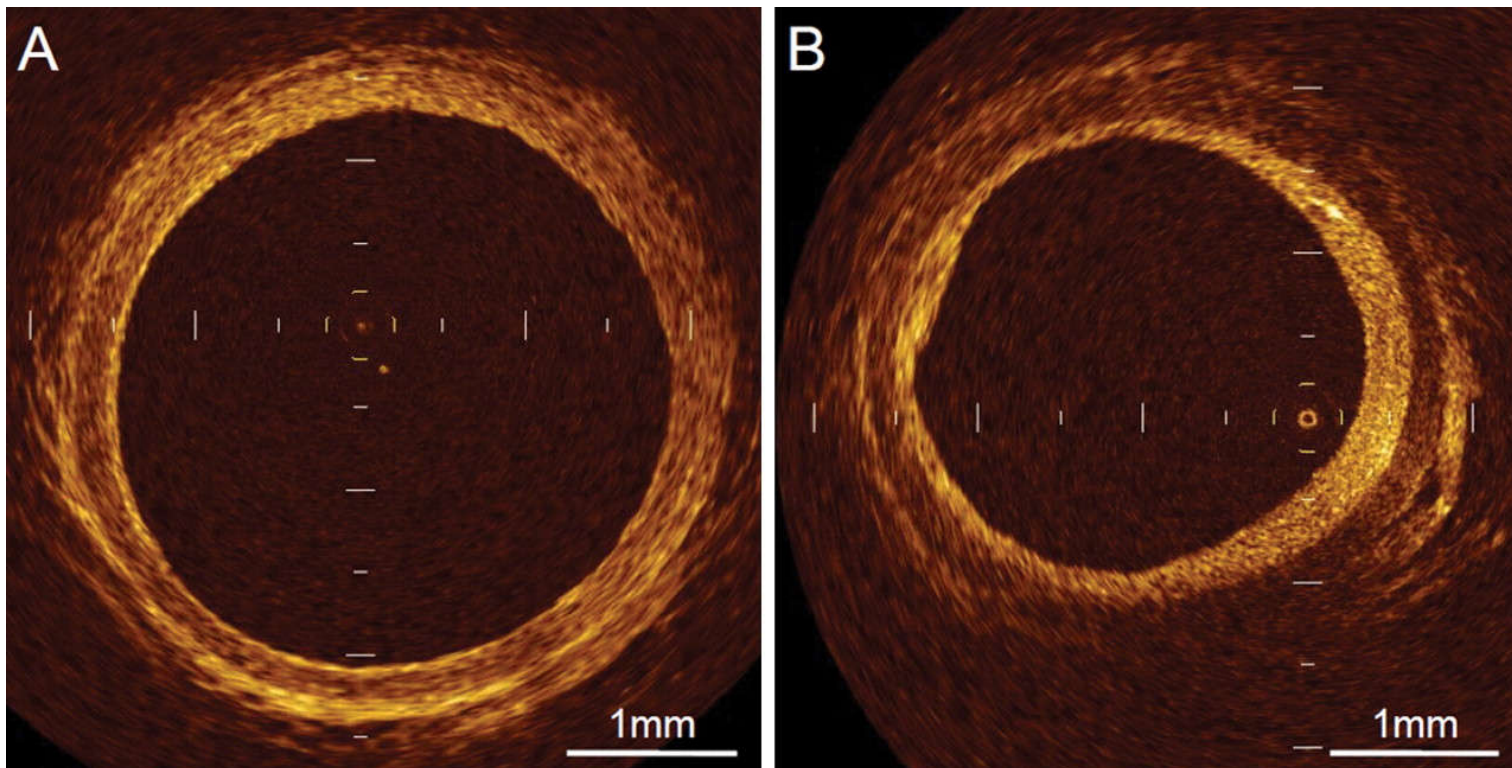


Le virage ambulatoire...

- Stable patient without complications in the first 2-3 hours post coronary angiography can be considered for early discharge.
- Stable patients with an optimal PCI result, optimal pharmacological treatment according to ESC guidelines and no cardiac or vascular complications during the procedure or up to 4-6 hours afterwards can be considered for outpatient treatment if performed at high-volume centres by experienced interventionalists.

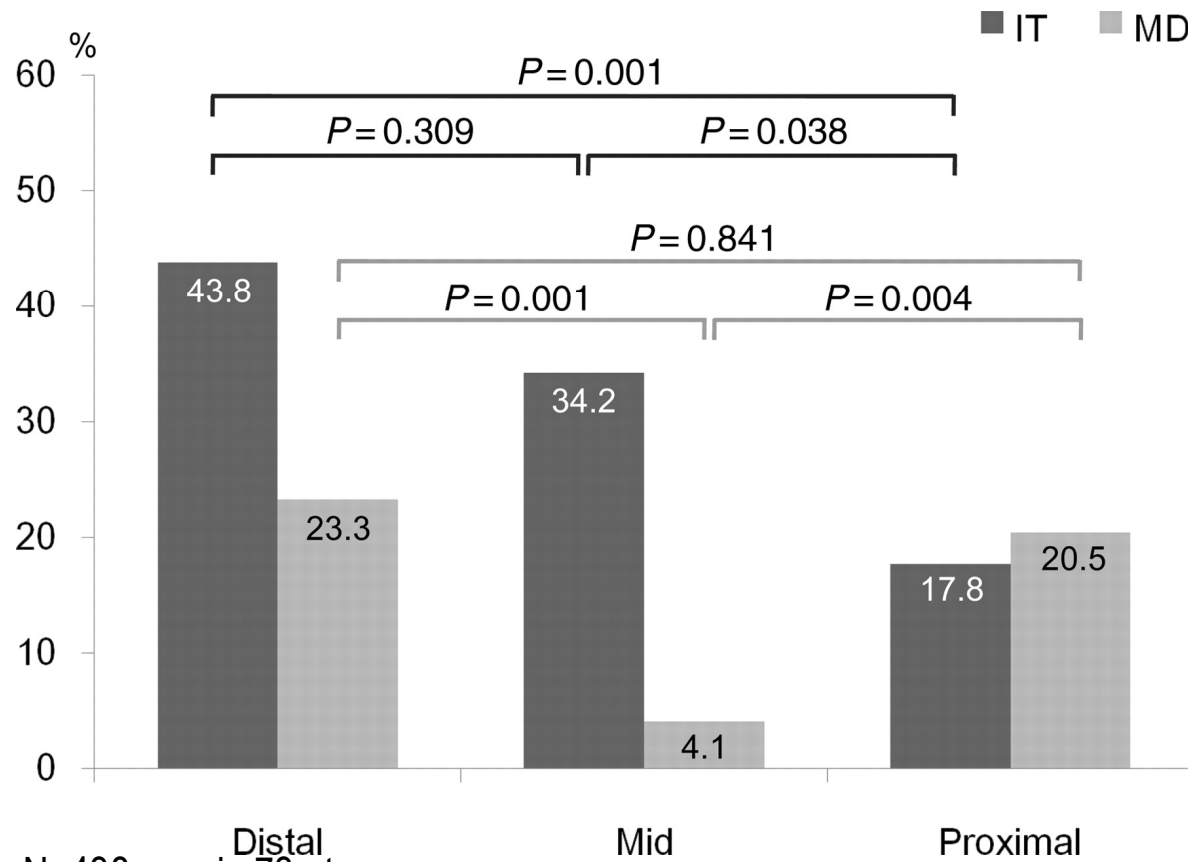
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Representative cases of intimal hyperplasia observed by optical coherence tomography in the first-transradial coronary intervention group and the repeat-transradial coronary intervention group.



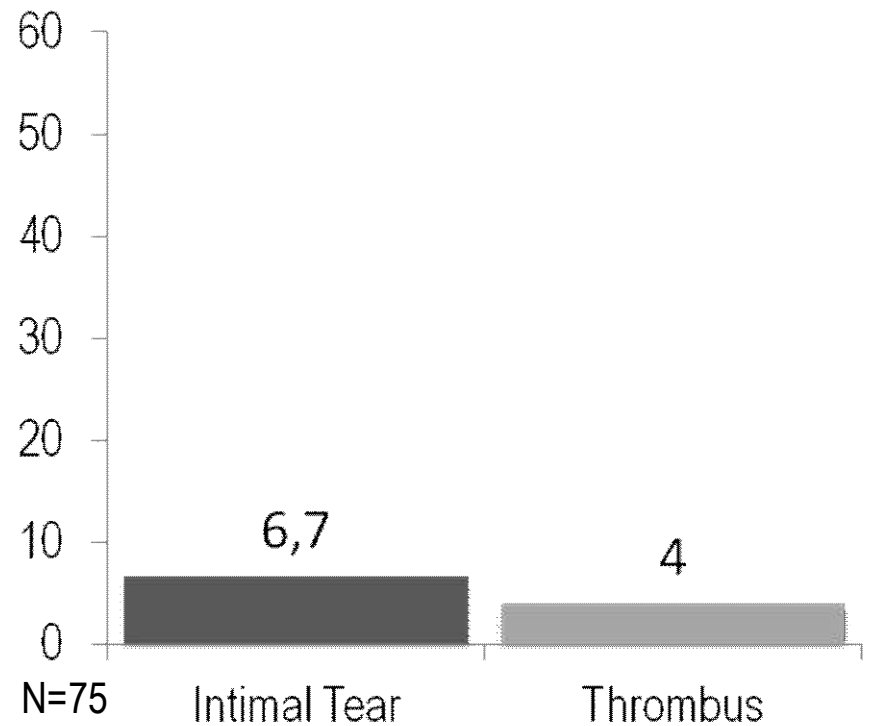
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Frequencies of intimal tears and medial dissections.



Taishi Yonetsu et al. *Eur Heart J* 2010;31:1608-1615

Per patient analysis



Rihani. *Eurointervention* 2016

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- Nécessité d'études prospectives chez les candidats à une fistule AV