Atrial fibrillation in ACHD

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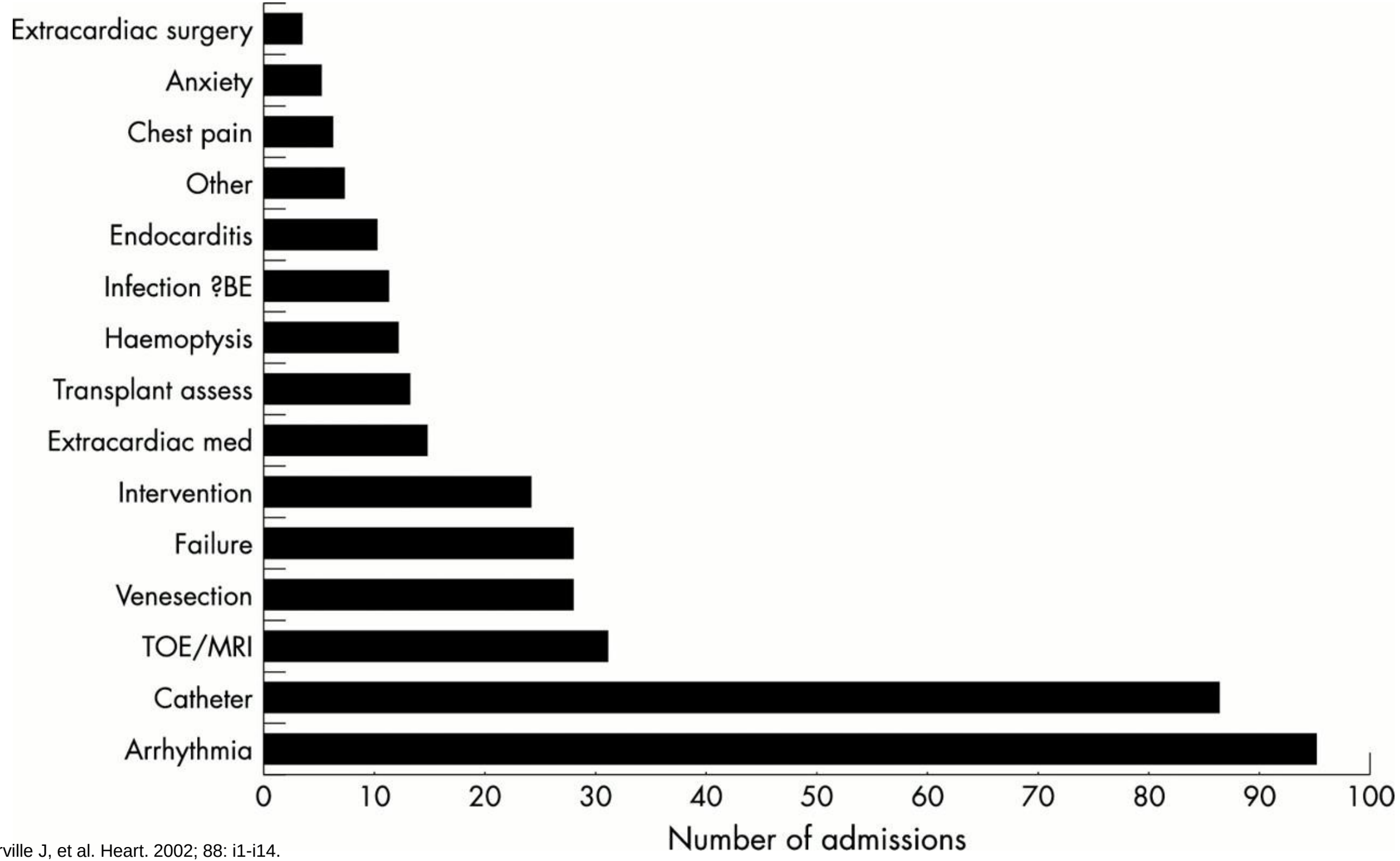
Disclosure

- I have no industry relationships that could be perceived as a real or apparent conflict of interest relating to this presentation.

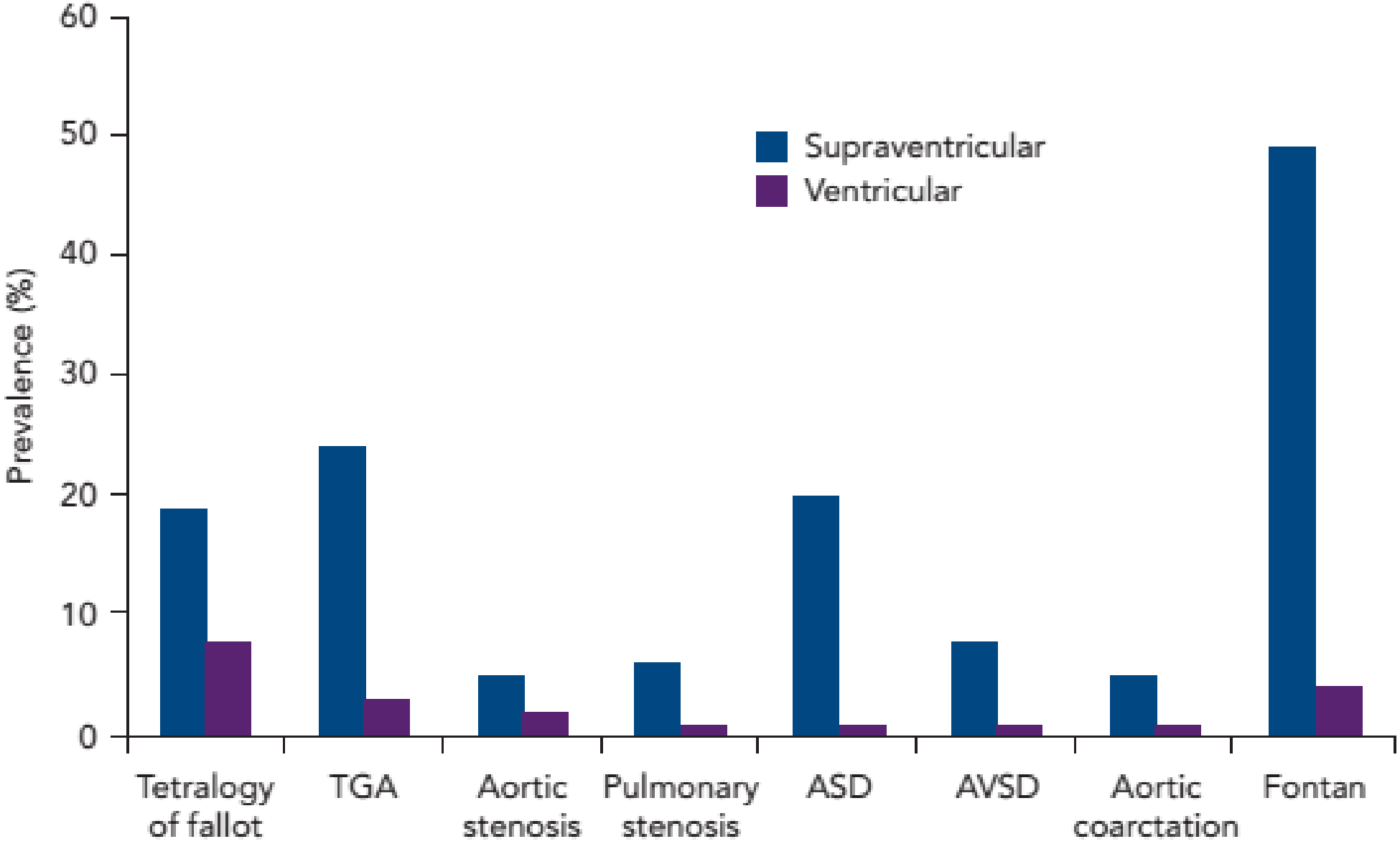
- This presentation contains off-label use of diagnostic electrophysiology catheters.

Overview

- Epidemiology
- Considering the challenges for catheter ablation in ACHD
- Targets for atrial fibrillation (AF) ablation
- How I approach targets for AF ablation



Somerville J, et al. Heart. 2002; 88: i1-i14.



ASD = atrial septal defect; AVSD = atrioventricular septal defect; TGA = transposition of the great arteries. Data from the Dutch national CONCOR registry.[22]

Brouwer C, et al. Arrhythmia & Electrophysiology Review 2016; 5(2):150–60.

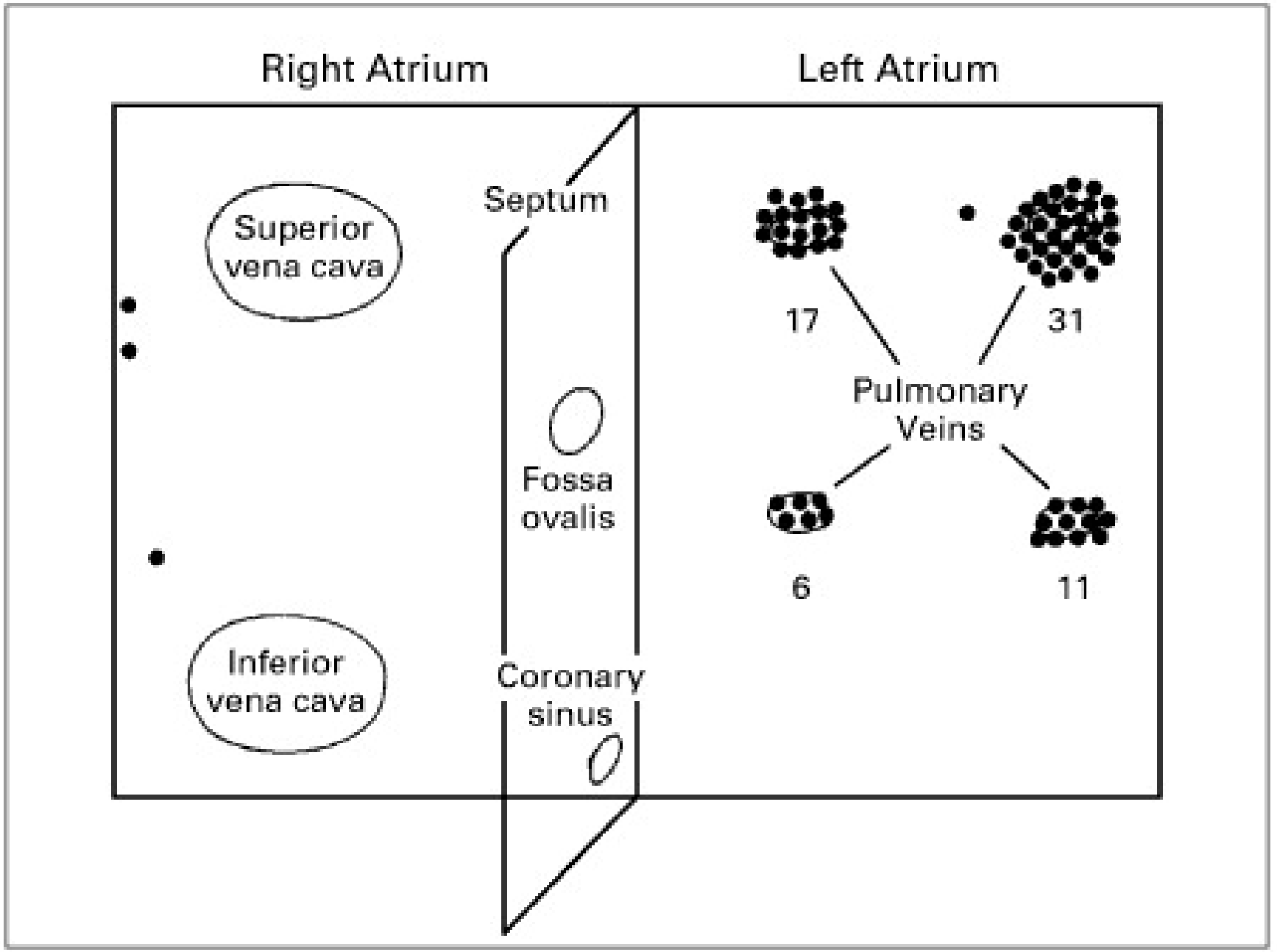
Challenges and objectives

- Identifying appropriate patients for catheter ablation.
- Understanding the patient's anatomy, haemodynamics, previous cardiac surgery, previous percutaneous interventional procedures, and understanding previous EP procedures.
- Safe and effective access to the target for ablation.
- Accurate identification of the target for ablation.
- Proving adequate ablation.
- Minimising procedure risk.

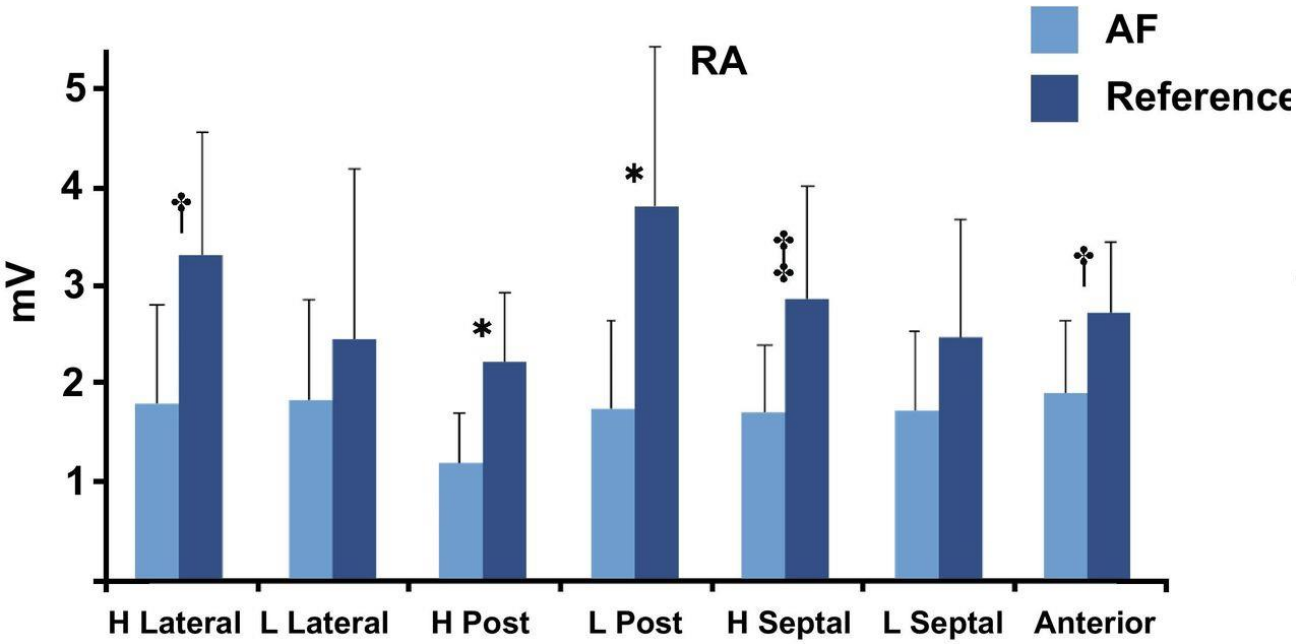
Concepts central to AF ablation

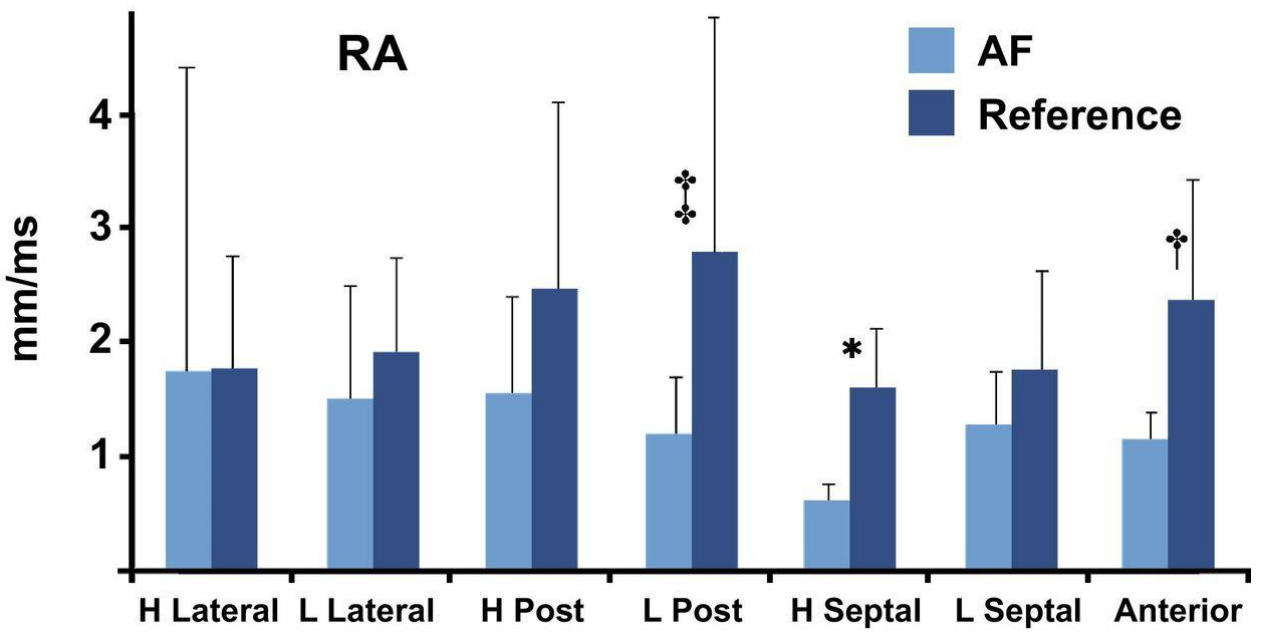
- Triggers
  - That which precipitates a change from sinus rhythm to AF
  - Commonly atrial ectopic beats
  - Could also be organised atrial arrhythmias, SVT, or even ventricular ectopics

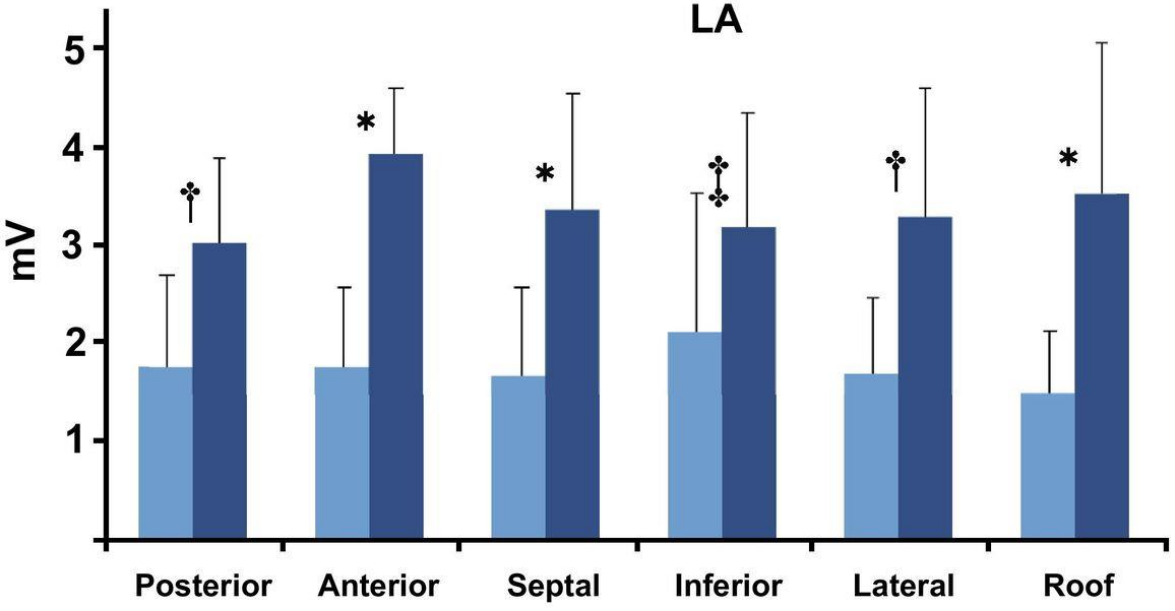
- Substrate
  - Atrial electrical or myocardial *abnormality*
  - Thought to be responsible for allowing AF to continue

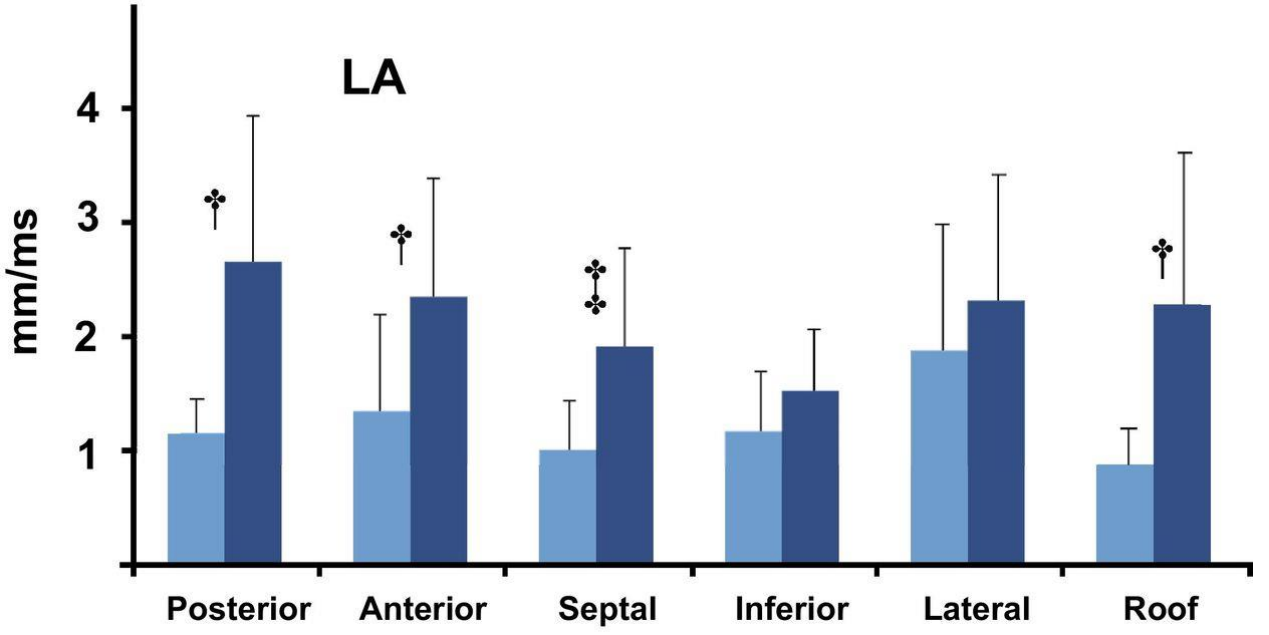


Haissaguerre M, et al. N Engl J Med 1998; 339:659-666

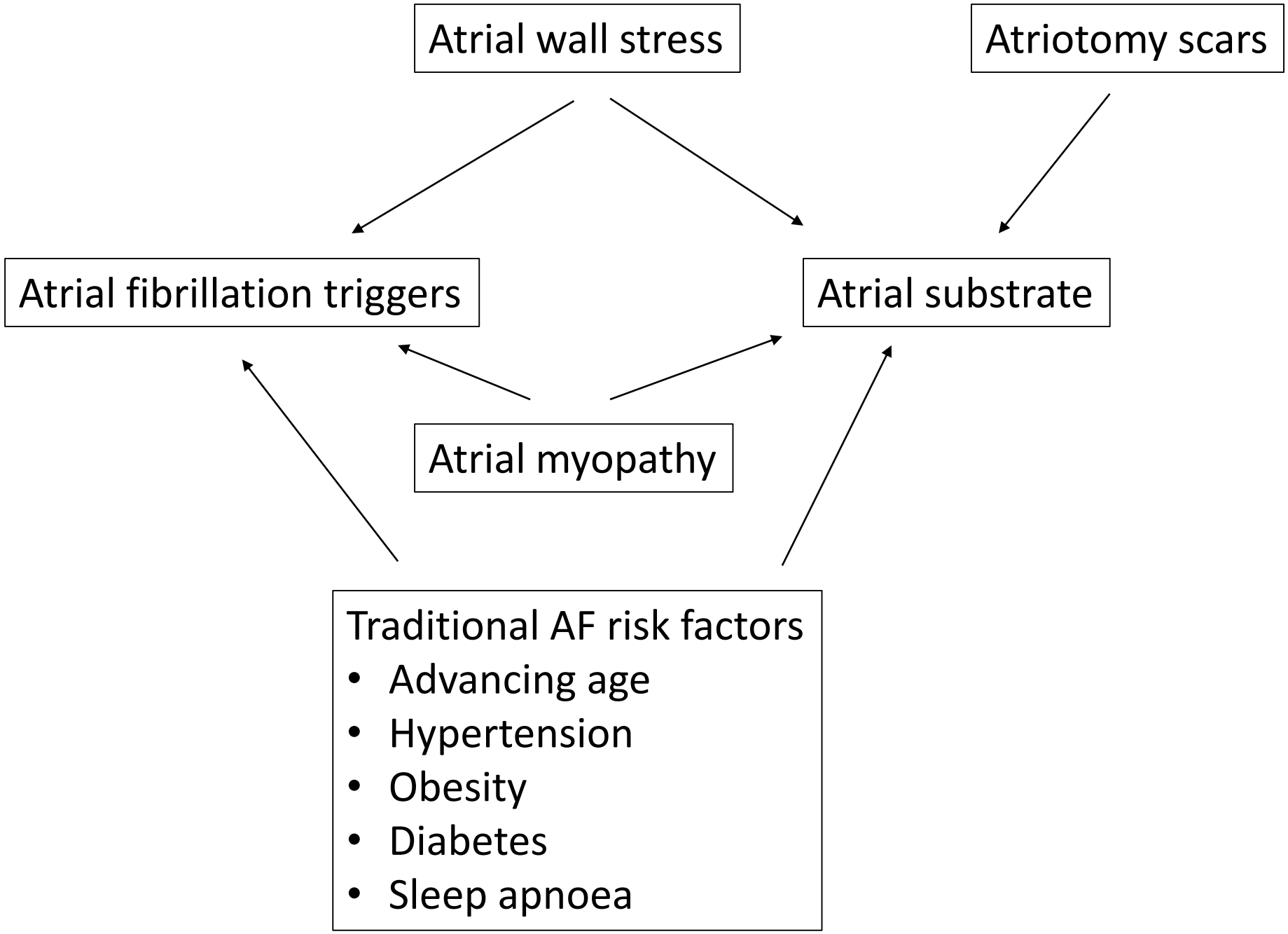






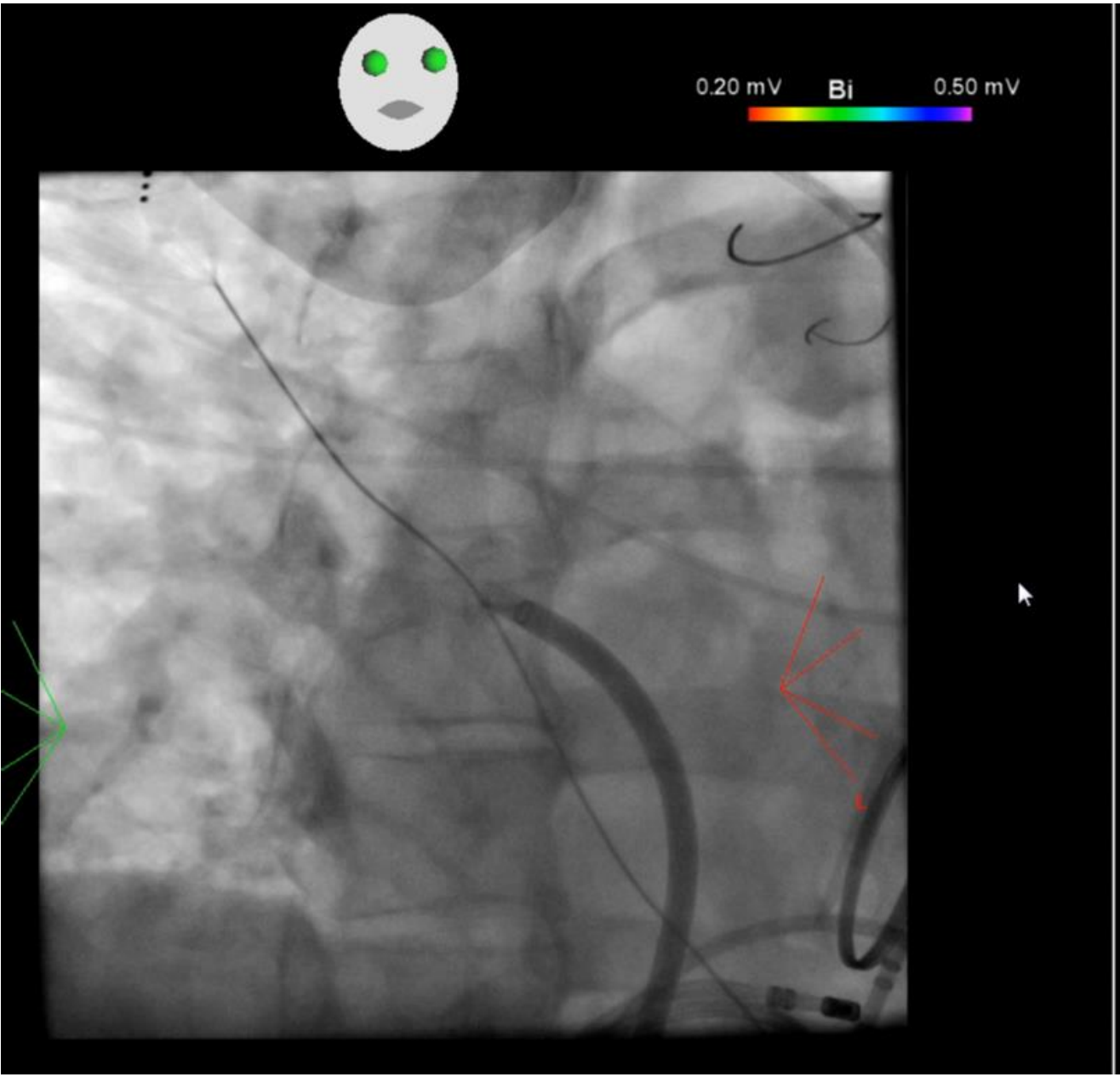


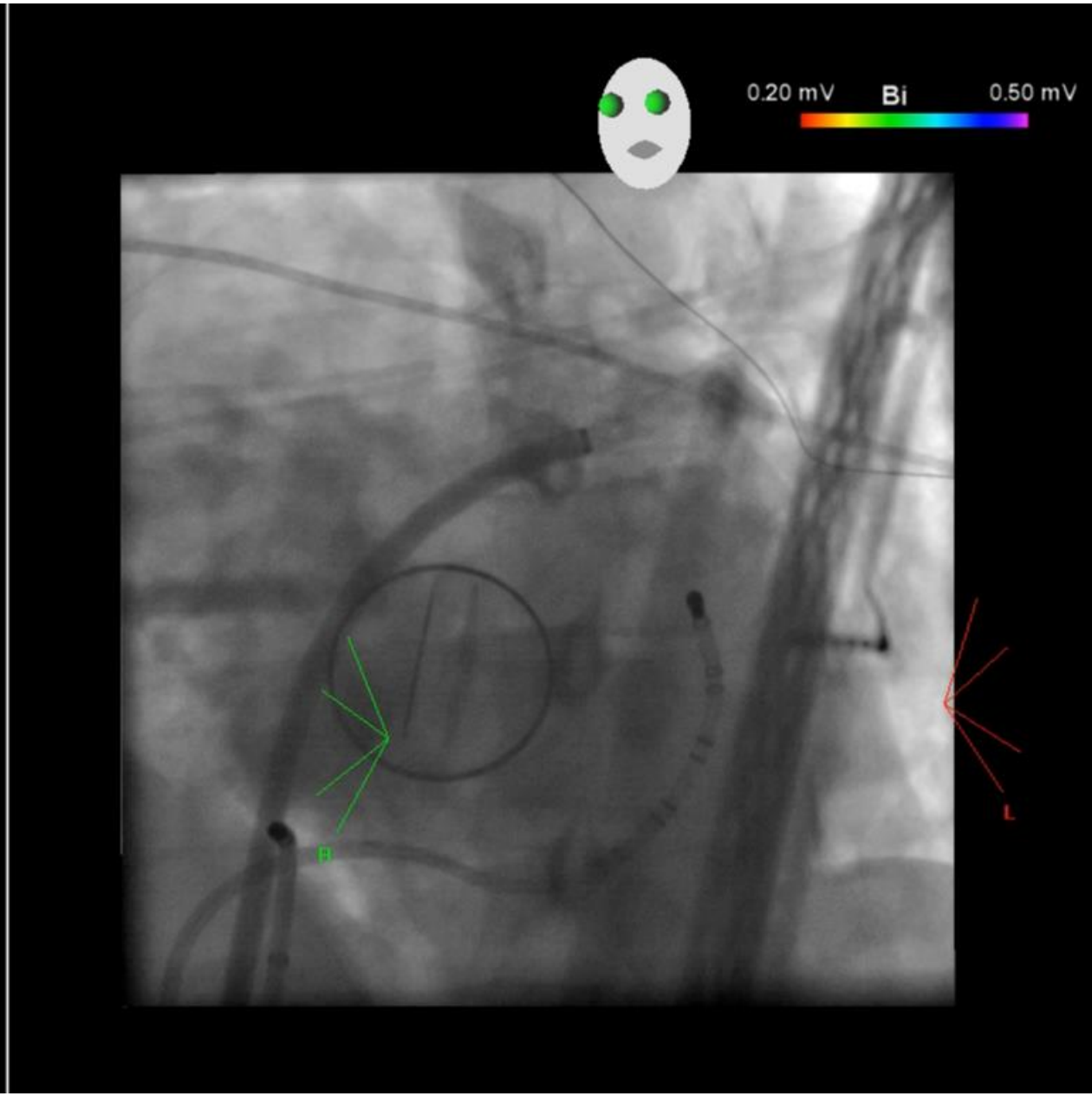
Stiles M, *et al.* JACC 2009;53:1182-1191

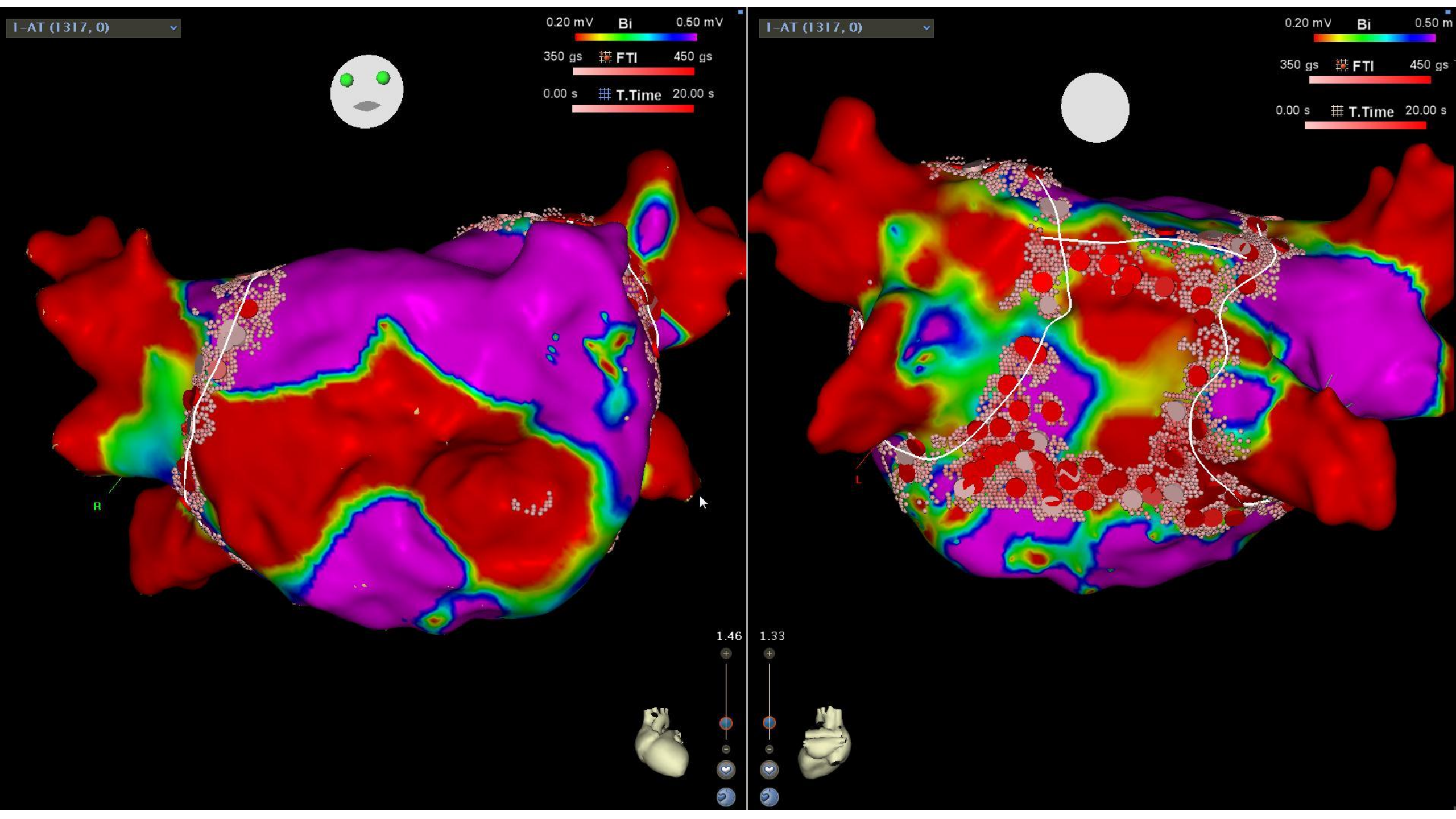

Atrial wall stress
Atriotomy scars
Atrial fibrillation triggers
Atrial substrate
Atrial myopathy
Traditional AF risk factors
• Advancing age
• Hypertension
• Obesity
• Diabetes
• Sleep apnoea

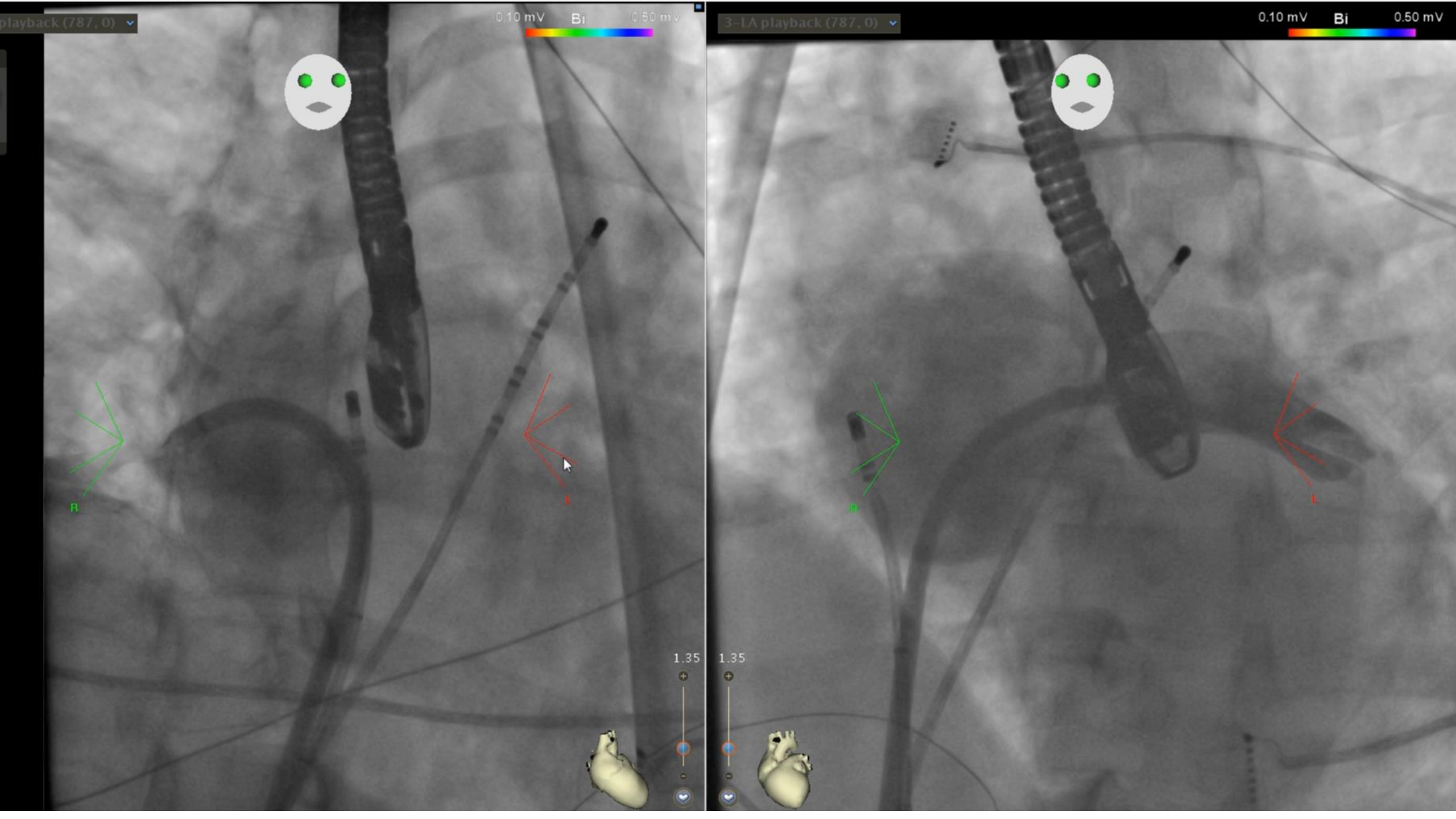

BOAT!


LAND!

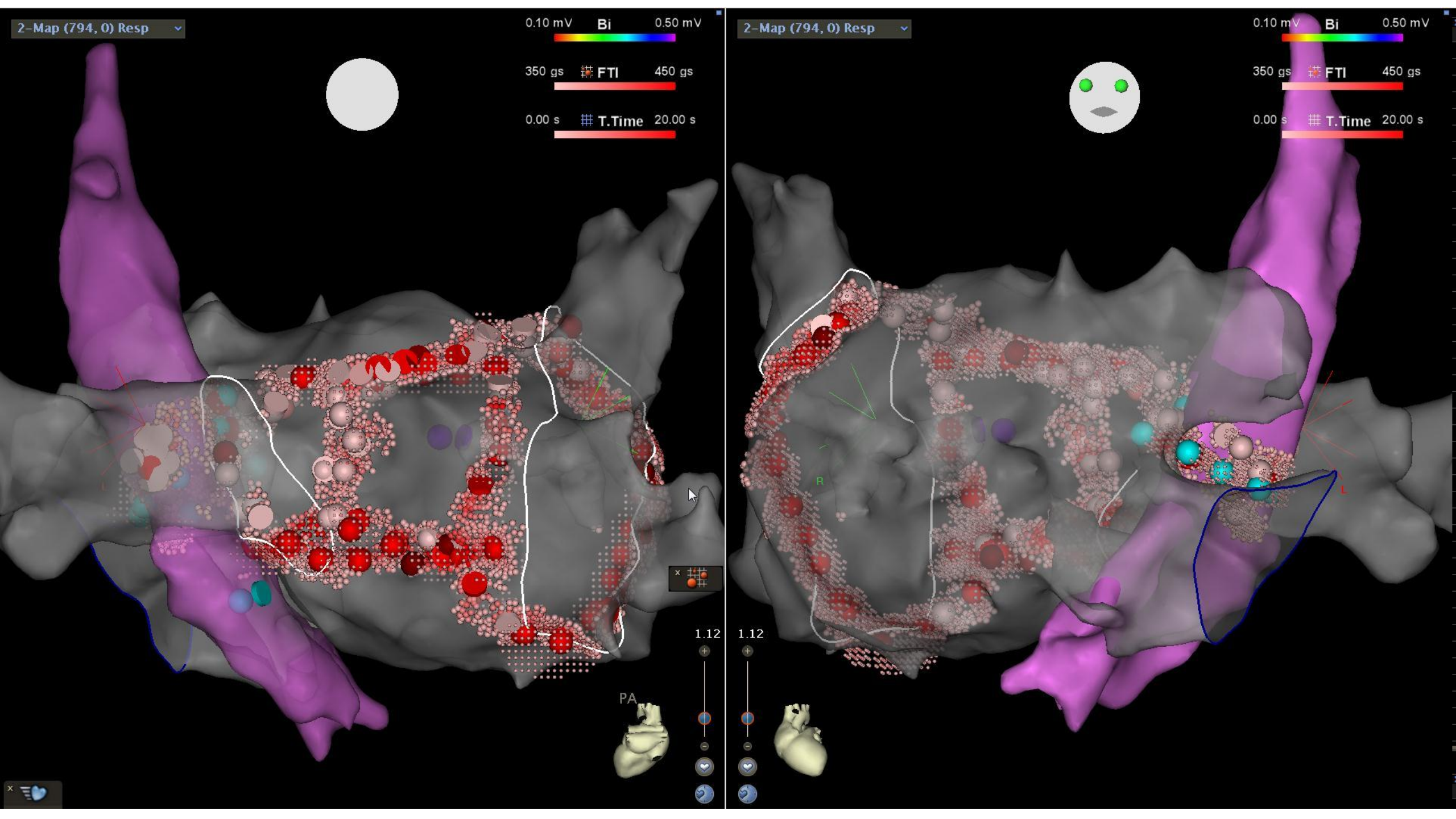

0.20 mV
Bi
0.50 mV


0.20 mV
Bi
0.50 mV


1-AT (1317, 0)
0.20 mV
Bi
0.50 mV
350 gs
FTI
450 gs
0.00 s
T.Time
20.00 s
R
1.46
1-AT (1317, 0)
0.20 mV
Bi
0.50 m
350 gs
FTI
450 gs
0.00 s
T.Time
20.00 s
L
1.33


playback (787, 0)
0.10 mV
Bi
0.50 mV
R
L
1.35
3-LA playback (787, 0)
0.10 mV
Bi
0.50 mV
R
L
1.35


907
CL
N/A
LAT (ms)
Loc
0.55
Bi (mV)
N/A
Imp (Ω)
N/A
Force (g)
200.0 mm/sec
MAP 1-2
PR 1-2
PR 3-4
PR 5-6
PR 7-8
PR 9-10
PR 11-12
PR 13-14
PR 15-16
PR 17-18
PR 19-20
CS 3-4
CS 5-6
CS 7-8
V1
-338
-76
0 sec
4-SVC playback (794, 0)
488
0.10 mV
Bi
AP PA LAO RAO LL RL INF SUP


2-Map (794, 0) Resp
0.10 mV
Bi
0.50 mV
350 gs
FTI
450 gs
0.00 s
T.Time
20.00 s
1.12
PA
2-Map (794, 0) Resp
0.10 mV
Bi
0.50 mV
350 gs
FTI
450 gs
0.00 s
T.Time
20.00 s
1.12
R
L

Conclusions

- Catheter ablation in the ACHD population is feasible.

- Targets for ablation seem best individualised based on likely triggers and substrate identified.