atriyal fibrilasyon derneği

Atriyal fibrilasyon ablasyonu

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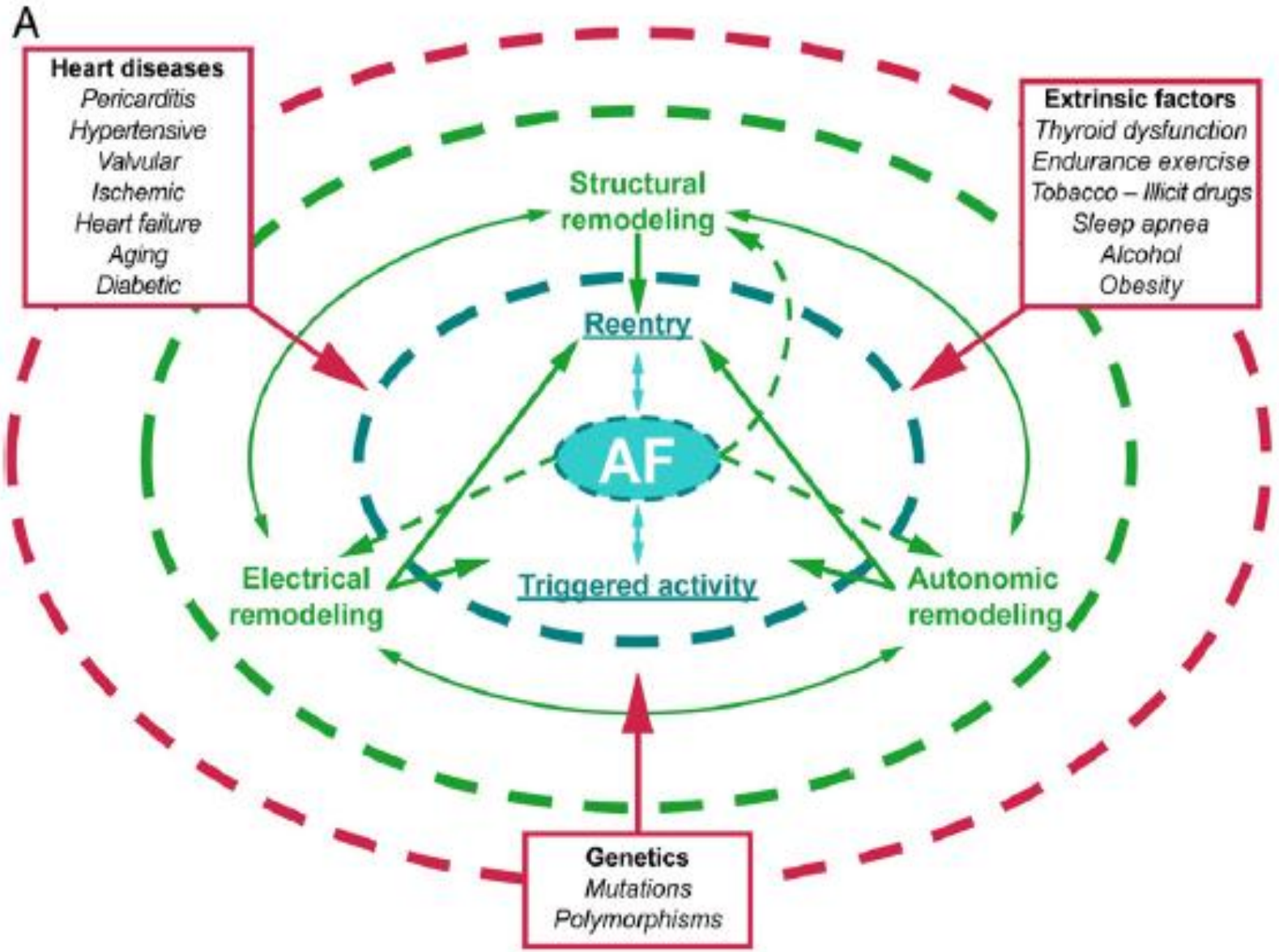
İzmir, 2014



Camm et al

American Heart Journal
September 2012

AF TEDAVİSİNDE HEDEF

- İnme riskini azaltmak
- Kalp yetmezliğini önlemek
- Semptomları azaltmak

Tercih (AFFIRM,RACE)

- Hız kontrol
- Ritim kontrol
    - AAİ (Sinüs ritminde tutma olasılığı, yan etki ?)
    - AF Ablasyonu

Ablasyonun Rolü

- Tartışmalı
  - Heterojen gruplar
  - Değişik ablasyon teknikleri
  - Takip sorunları
  - Sonucun değerlendirmesi

Atriyal Fibrilasyon Ablasyonu için Uzlaşma Önerileri – ESC 2012

	SINIF	KANIT DÜZEYİ
En az 1 Sınıf I veya III antiaritmik ilaca dirençli / ilacın tolere edilemediği Semptomatik Atriyal Fibrilasyon olguları		
Paroksismal ***(önerilir !)***	**I**	**A**
Persistan ***(önerilebilir)***	**IIa**	**B**
Uzun süreli persistan ***(düşünülebilir)***	**IIb**	**B**

Atriyal Fibrilasyon Ablasyonu için Uzlaşma Önerileri - ESC 2012

	SINIF	KANIT DÜZEYİ
İlaç tedavisi başlanmamış Semptomatik Atriyal Fibrilasyon olguları		
Paroksismal *(önerilebilir)*	IIb	B
Persistan *(düşünülebilir)*	IIb	C
Uzun süreli persistan *(düşünülebilir)*	IIb	C

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Europace (2012) **14**, 528–606
doi:10.1093/europace/eus027

HRS/EHRA/ECAS EXPERT CONSENSUS STATEMENT

5.6. AF Catheter Ablation to Maintain Sinus Rhythm: Recommendations

Class I

1. **AF catheter ablation is useful for symptomatic paroxysmal AF refractory or intolerant to at least 1 class I or III antiarrhythmic medication when a rhythm control strategy is desired (154-160).** ***(Level of Evidence: A)***
2. **Prior to consideration of AF catheter ablation, assessment of the procedural risks and outcomes relevant to the individual patient is recommended.** ***(Level of Evidence: C)***

Class IIa

1. **AF catheter ablation is reasonable for selected patients with symptomatic persistent AF refractory or intolerant to at least 1 class I or III antiarrhythmic medication (157, 161-163).** ***(Level of Evidence: A)***
2. **In patients with recurrent symptomatic paroxysmal AF, catheter ablation is a reasonable initial rhythm control strategy prior to therapeutic trials of antiarrhythmic drug therapy, after weighing risks and outcomes of drug and ablation therapy (164-166).** ***(Level of Evidence: B)***

Class IIb

1. **AF catheter ablation may be considered for symptomatic long-standing (>12 months) persistent AF refractory or intolerant to at least 1 class I or III antiarrhythmic medication, when a rhythm control strategy is desired (154, 167).** ***(Level of Evidence: B)***
2. **AF catheter ablation may be considered prior to initiation of antiarrhythmic drug therapy with a class I or III antiarrhythmic medication for symptomatic persistent AF, when a rhythm control strategy is desired.** ***(Level of Evidence: C)***

Class III: Harm

1. **AF catheter ablation should not be performed in patients who cannot be treated with anticoagulant therapy during and following the procedure.** ***(Level of Evidence: C)***
2. **AF catheter ablation to restore sinus rhythm should not be performed with the sole intent of obviating the need for anticoagulation.** ***(Level of Evidence: C)***

Ablasyona karar verilince

- Hastaya işlem özellikleri anlatılmalı

  Komplikasyonlar

  Süresi

  Nüks

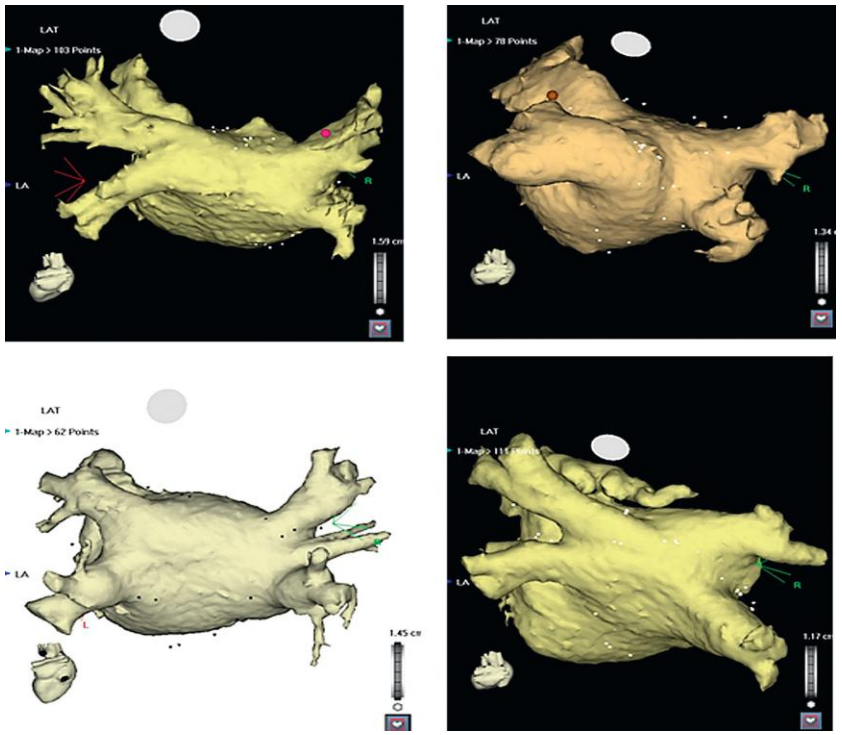
  Tekrarlayan işlemler gerekebileceği

  Onam formu

Ablasyona Başlarken

- Angio lab.
- İşlem öncesi anatomi bilgisi
- Kateter
- EP sistemi

  3 boyutlu haritalama



Koagulasyon

İşlem öncesi TEE

OAK stoplanmadan teropatik dozda işleme devam edilmesi,mümkünse 3-4 hafta önceden başlanılması hedef INR 2.1-2.4

Hastanın tromboemboli riski CHADS2

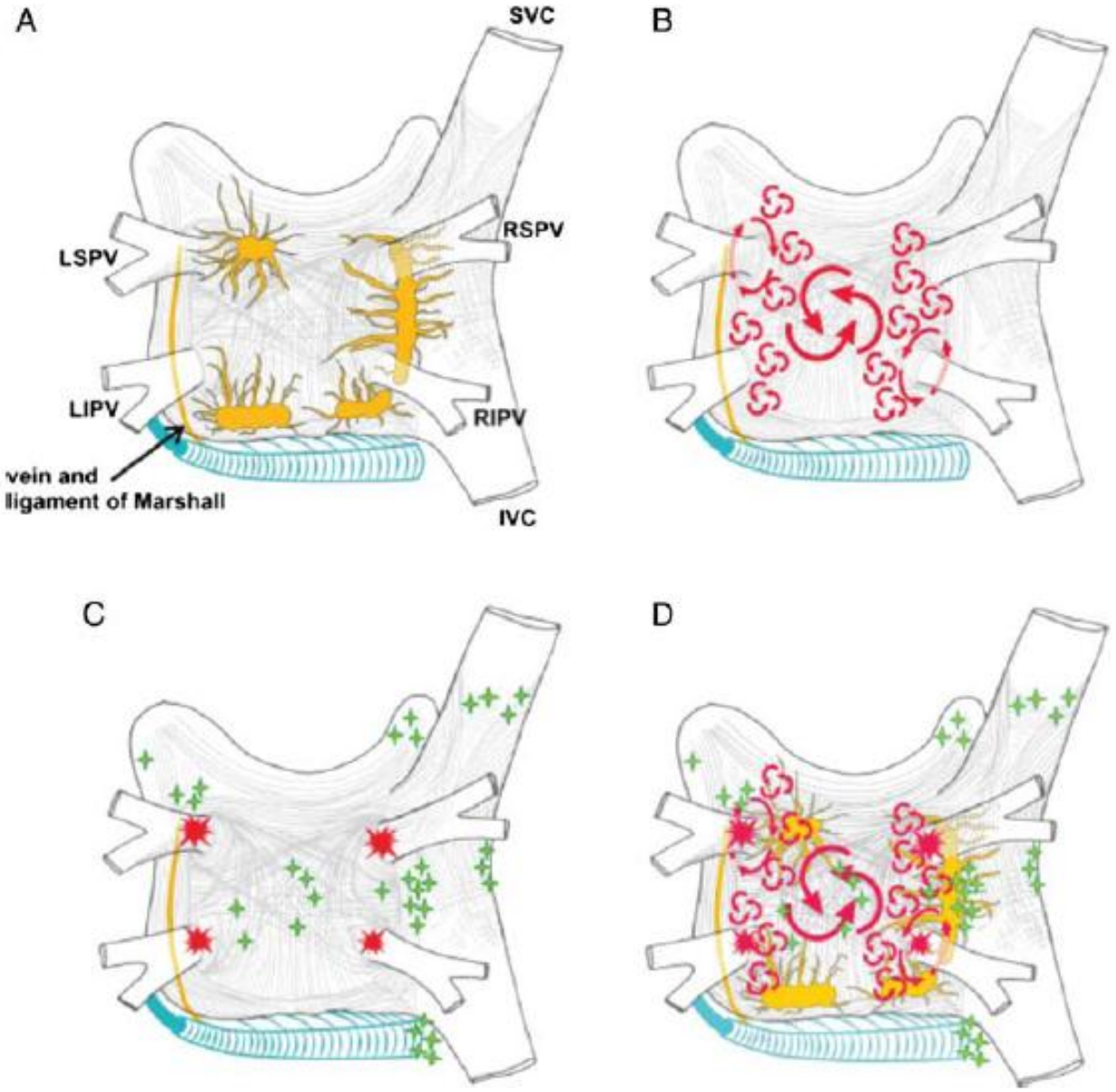
Ablasyon sonrası 3 ay devam, devamı için risk değerlendir

Ablasyon Teknikleri

Anatomik kaynak

- Tetikleyici
- Duyarlı atriyal doku

AF Ablasyonu

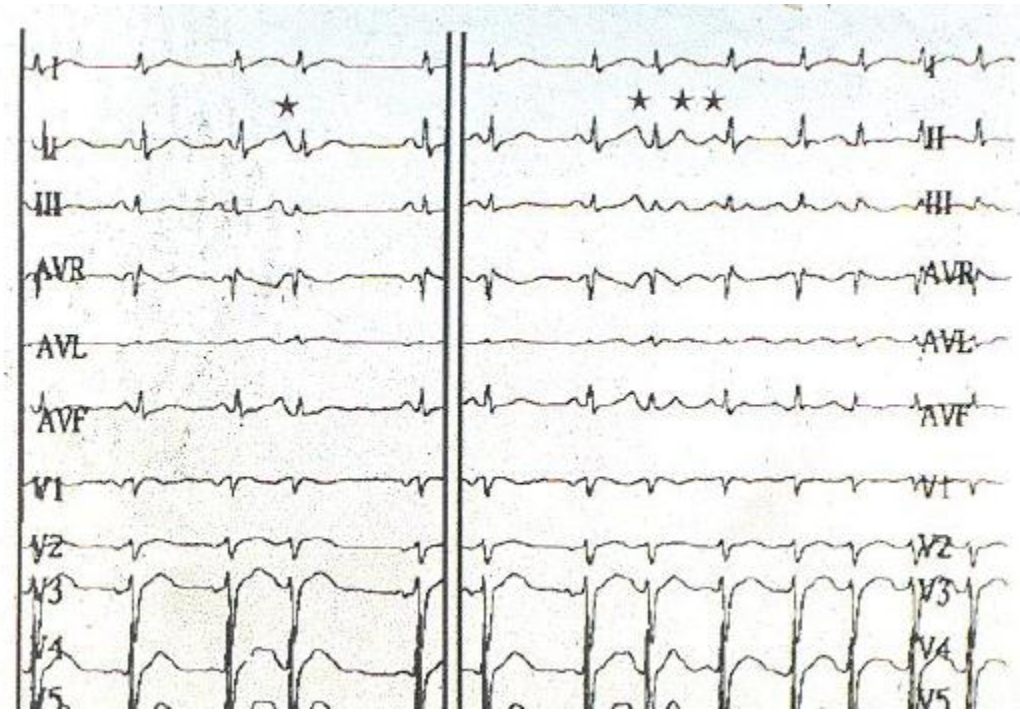


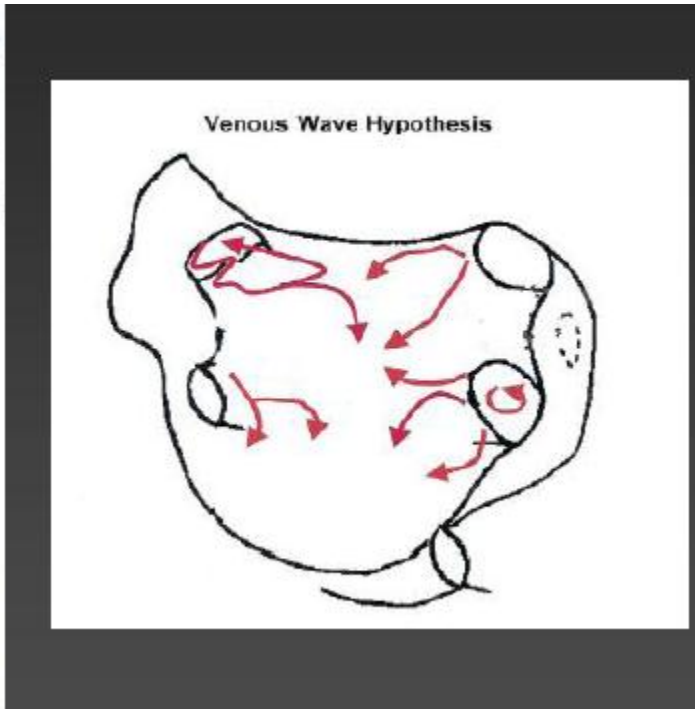
AF Ablasyonu

- **Hedef**
  - **Tetikleyiciler**
    - Pulmoner venler
      - *Paroksismal AF*
      - En sık tetikleyici kaynağı
      - Diğer tetikleyicilerin bir kısmına komşu
    - Otonomik gangliyonlar
    - Diğer (VCS, CS os, vb.)
  - **Aritmojenik substrat**
    - Yeniden biçimlenmiş atriyum dokusu (antrum)
      - *Persistan – Uzun süreli AF*
      - CFAE ??

AF Ablasyonu – Gelişimi

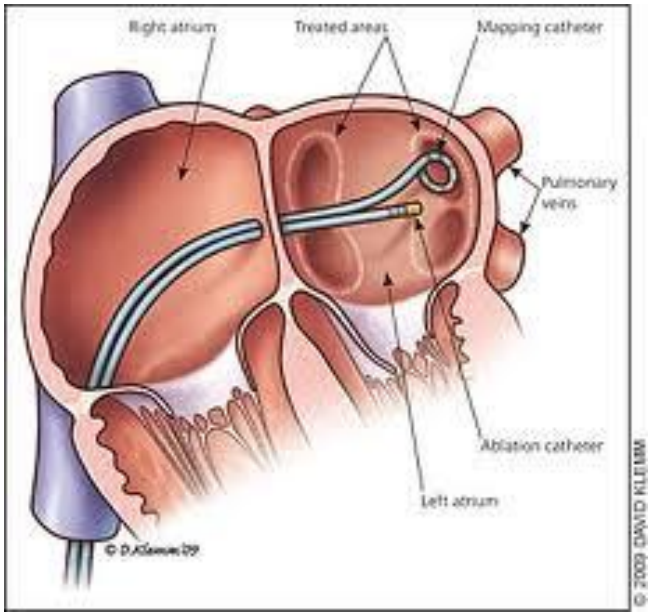
- **Pulmoner venleri hedefleyen yaklaşımlar**
  - ***Pulmoner venlerin tetikleyici olarak tanımlanması***
    - **Tetikleyicinin doğrudan ablasyonu (“Fokal yaklaşım”)**
      (Haissaguerre 1994, 1997, 1998)





AF Ablasyonu – Gelişimi

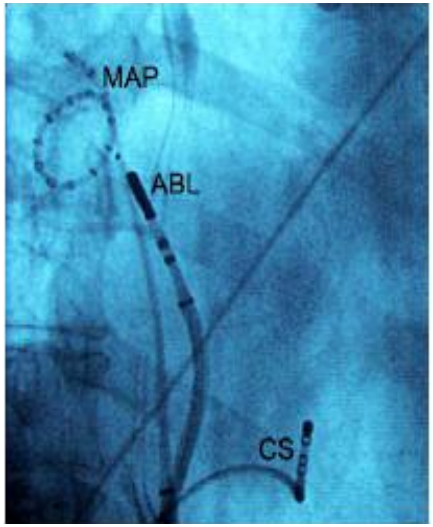
- **Pulmoner venleri hedefleyen yaklaşımlar**
  - ***Pulmoner venlerin tetikleyici olarak tanımlanması***
    - **Tetikleyicinin doğrudan ablasyonu ("Fokal yaklaşım")**
      - **Sorunlar**
        - AF'nin başlatılmasında zorluklar
        - Birden çok veya sessiz tetikleyiciler
        - 3 boyutlu damarda haritalama zorlukları
        - "PV-dışı" odaklar ? (Marshall, CS, RA, vb..)
        - PV darlığı ve tıkanması ?
        - Yüksek tekrarlama oranları
        - Yeni odaklar (sessiz odaklar ?)

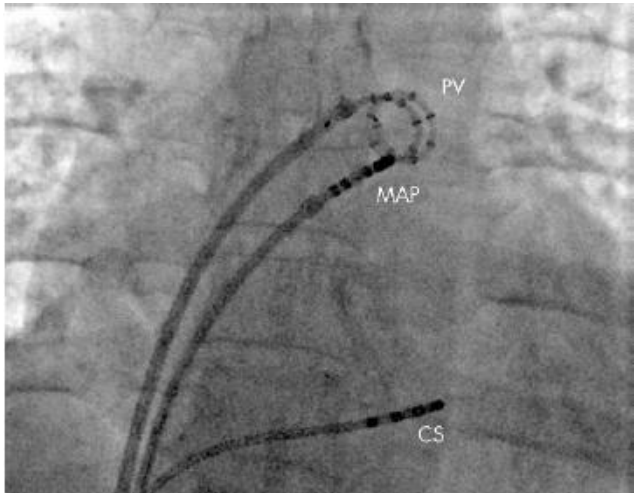


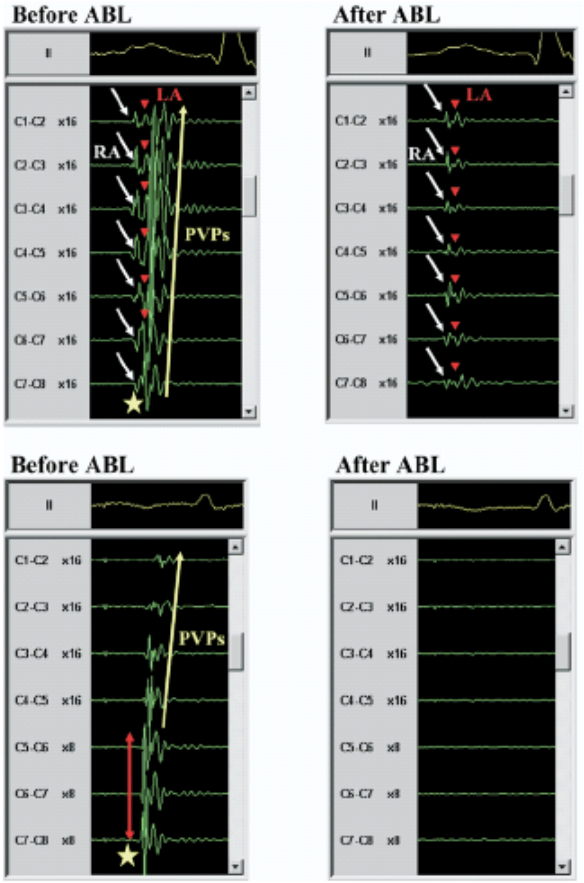
AF Ablasyonu – Gelişimi

- **Pulmoner venleri hedefleyen yaklaşımlar**
  - ***Pulmoner venlerin tetikleyici olarak tanımlanması***
    - **Pulmoner venin izolasyonu**
      - **Segmental PV izolasyonu**

(Haissaguerre, Oral, Marchlinsky, Kuck)

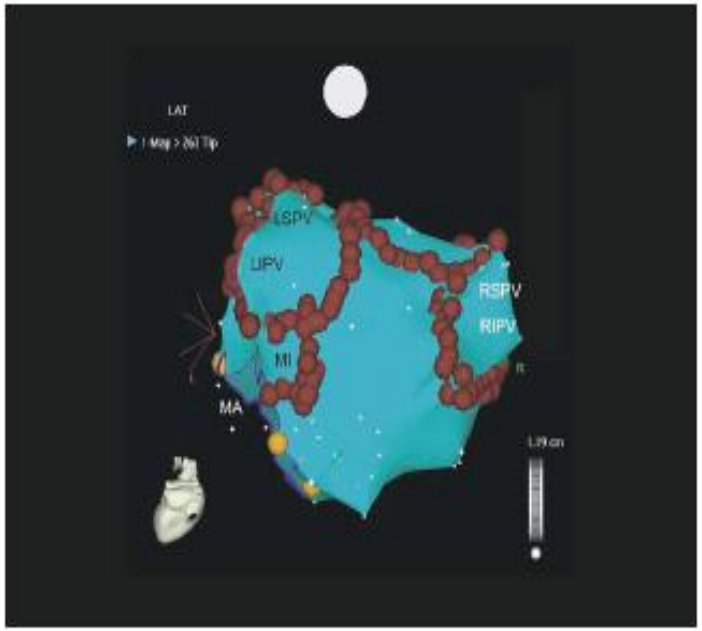


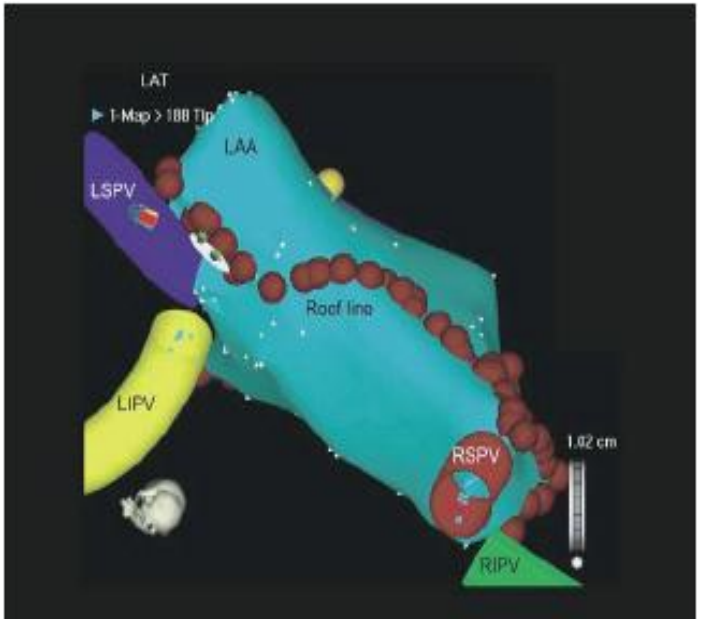




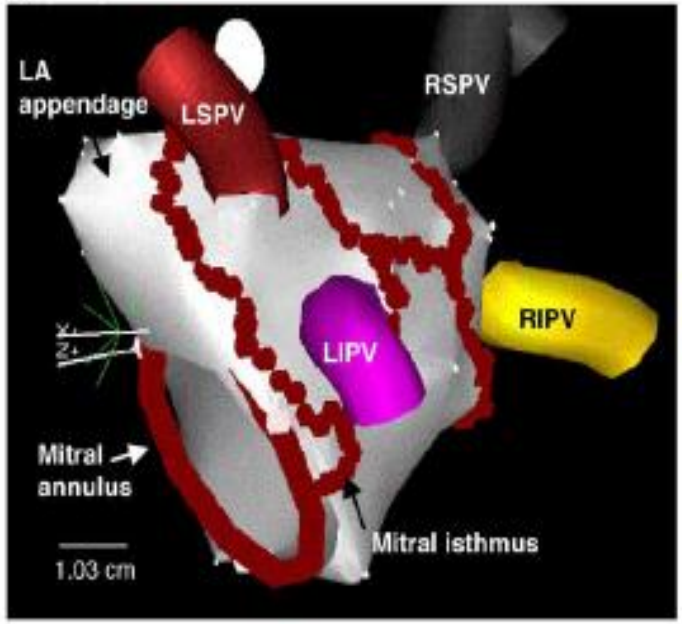
AF Ablasyonu – Gelişimi

- **Pulmoner venler + Atriyal substratı hedefleyen yaklaşımlar**
  - ***PV-LA antrumunun rolünün tanımlanması***
    - **Geniş alanlı (antral) dairesel izolasyon (WACA)**
      (Pappone, Oral, Natale, vd…)
      - 3D elektroanatomik haritalama sistemleri
      - Floroskopi kılavuzluğu
      - İntrakardiyak EKO (ICE) kılavuzluğu
      - İşlem hedefleri
        - Sinyal amplitüdünde azalma
        - PV sinyallerinin ablasyonu-izolasyonu
        - ATP ile “dormant” PV iletiminin açığa çıkarılması ?

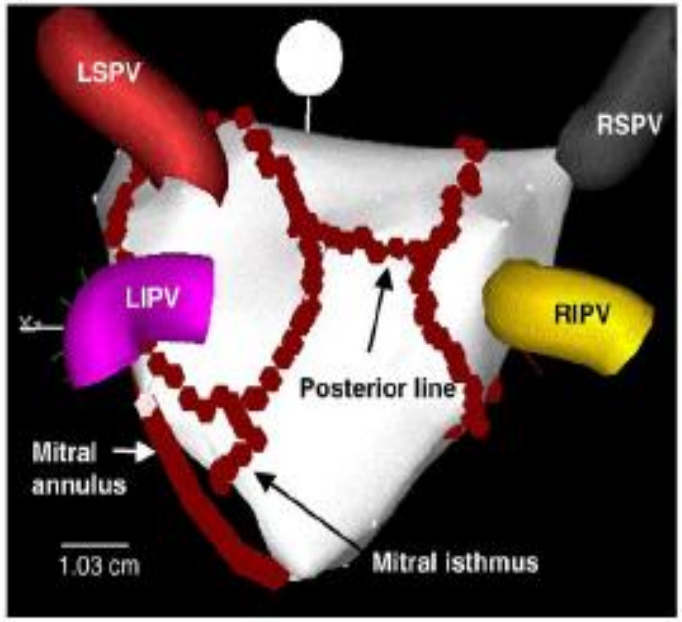

LAT
LSPV
UPV
RSPV
RIPV
MI
MA


LAT
LAA
LSPV
Roof line
LIPV
RSPV
RIPV
1.02 cm

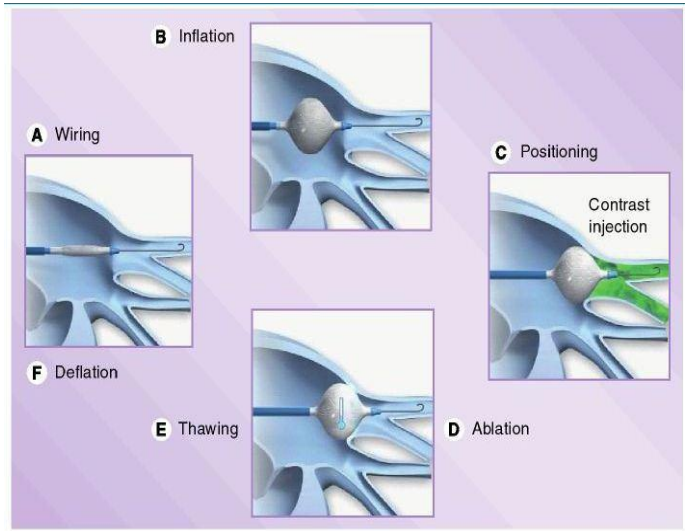
A

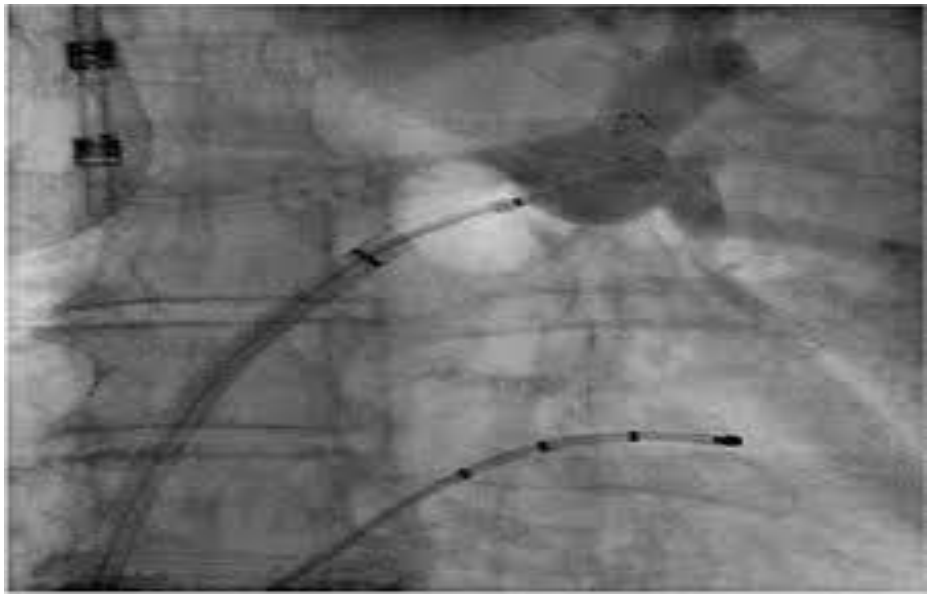

LA appendage
LSPV
RSPV
RIPV
LIPV
Mitral annulus
Mitral isthmus
1.03 cm

B


LSPV
RSPV
LIPV
RIPV
Posterior line
Mitral annulus
Mitral isthmus
1.03 cm

Cryoablasyon





AF Ablasyonu – Gelişimi

Atriyal substratı hedefleyen yaklaşımlar

Fraksiyone atriyal elektrogramların rolü ?

Kompleks fraksiyonel atriyal elektrogramların ablasyonu (CFAE) *(Nadamanee)*

Substrat modifikasyonu – rotor dalga kümelerinin önlenmesi ?

AF'nin sonlanması, AF'nin indüklenmemesi

Sonuçlar tartışmalı !

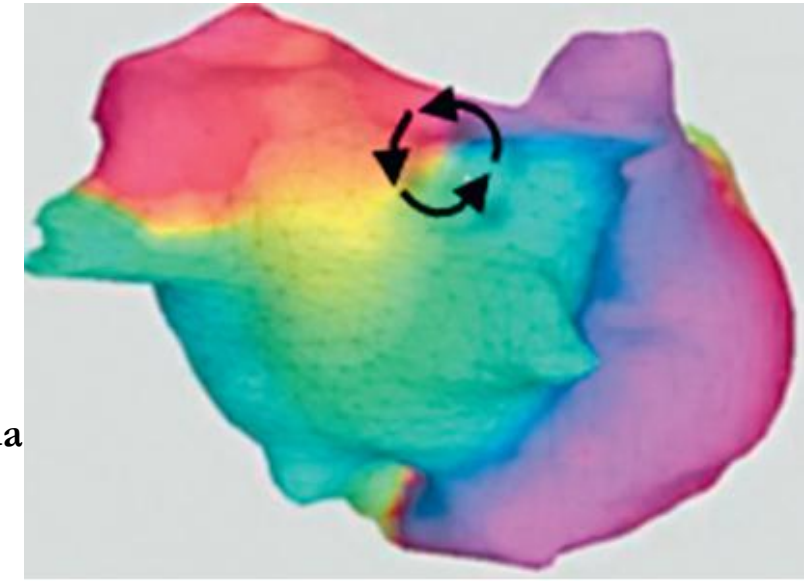
Yaygın ablasyon gereksinimi

Basamaklı yaklaşım *(Haisseguerre)*

PVI + CFAE + Lineer lezyonlar

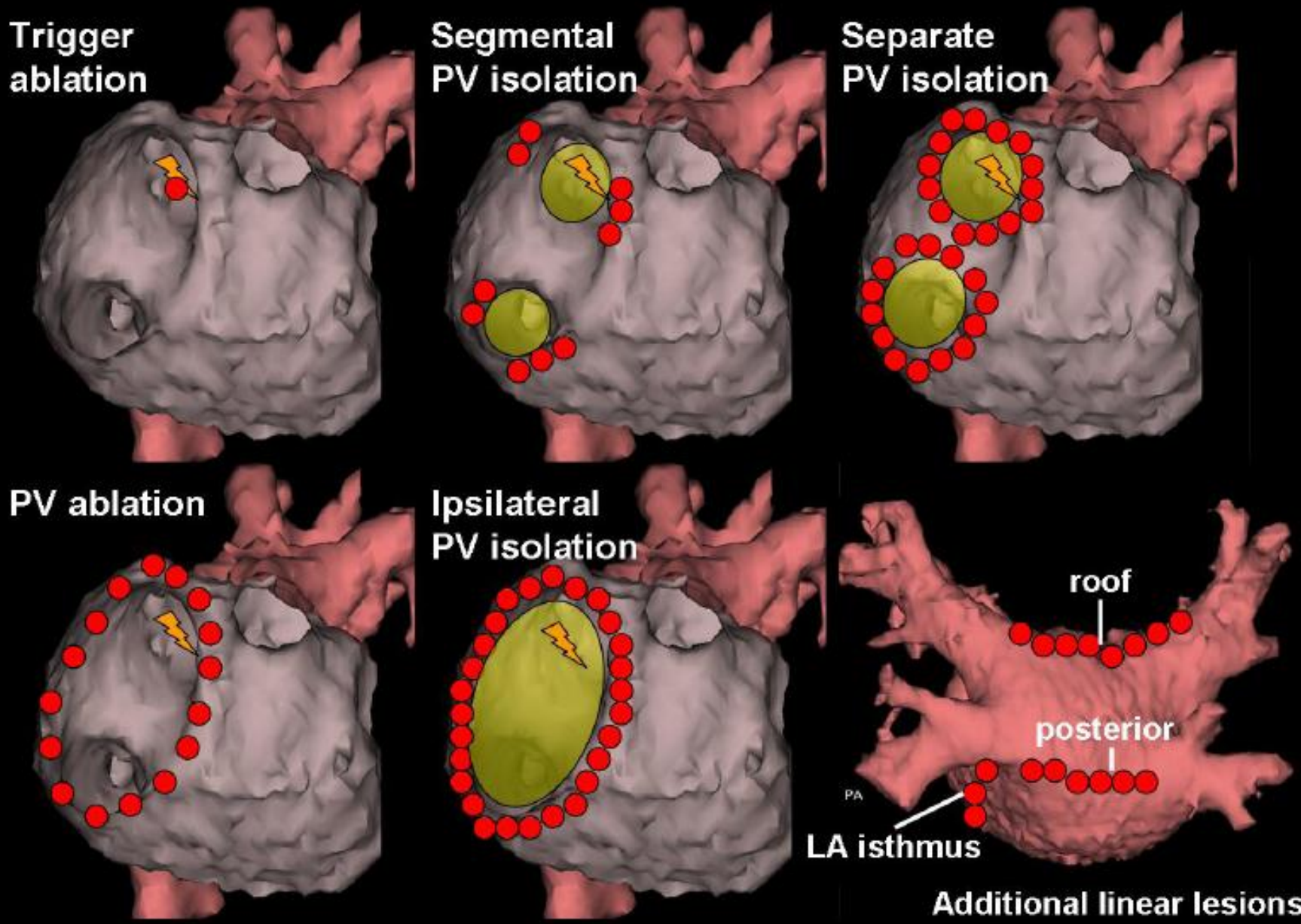
Gangliyonik pleksus ablasyonu

Yüksek frekanslı uyarıya (HFS) vagal yanıt kılavuzluğunda



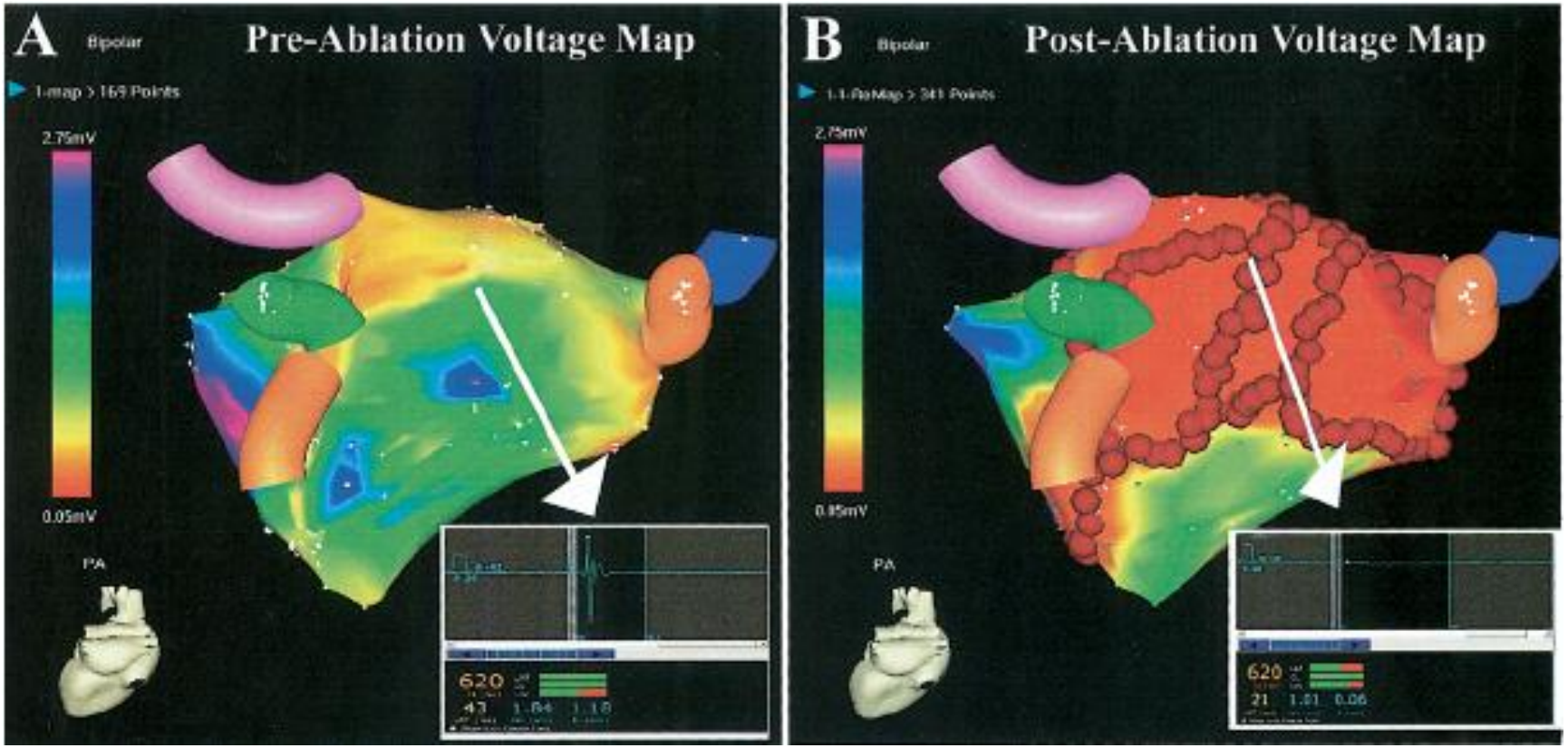
AF Ablasyonu – Hangi durumda hangi teknik ?

- **Paroksismal AF …**
  - **Antral PV izolasyonu**
    - **RF Ablasyon (3D görüntüleme kılavuzluğu)**
      - İrrigated tip
      - PVAC
    - **Kriyoablasyon**
      - Kriyo kateter
      - Kriyobalon
    - **Lazer ablasyon**
    - **Diğer …**
- **Persistan AF …** *(Permanent ???)*
  - **PV izolasyonu + lineer lezyonlar + CFAE-Ab ?**
    - **RF**
      - **Yeni teknolojiler (“contact force”, “ECİ”, vb)**
    - **Kriyobalon + RF ?**

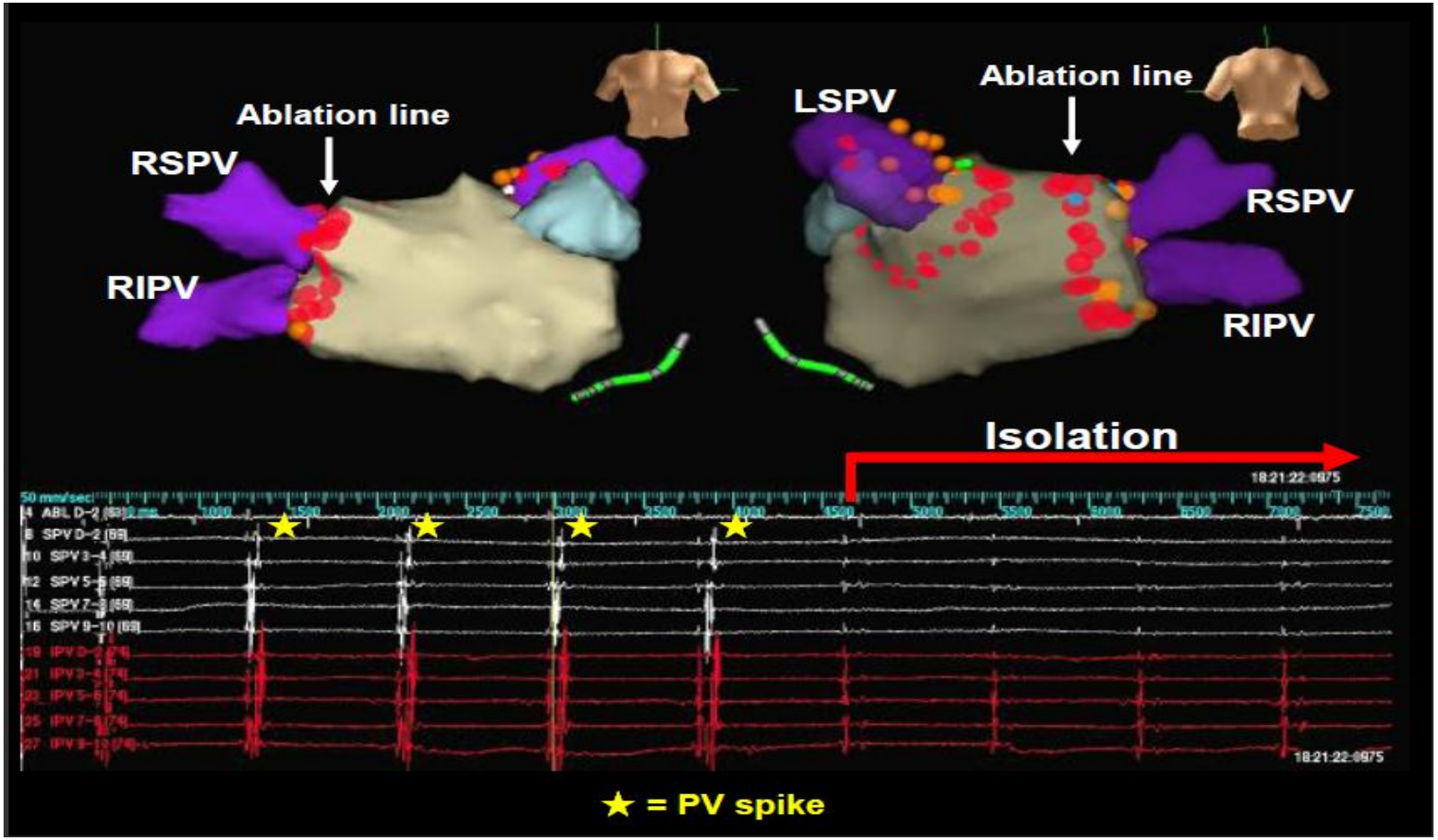


Camm, Ernst et al, ESC textbook 2010

Başarı


A
Bipolar
Pre-Ablation Voltage Map
2.75mV
0.05mV
PA
620
B
Bipolar
Post-Ablation Voltage Map
2.75mV
0.05mV
PA
620

Başarı


Ablation line
RSPV
RIPV
LSPV
Ablation line
RSPV
RIPV
Isolation
★ = PV spike

Long-Term Results of Catheter Ablation in Paroxysmal Atrial Fibrillation

Lessons From a 5-Year Follow-Up

Feifan Ouyang, MD*; Roland Tilz, MD*; Julian Chun, MD; Boris Schmidt, MD; Erik Wissner, MD; Thomas Zerm, MD; Kars Neven, MD; Bulent Köktürk, MD; Melanie Konstantinidou, MD; Andreas Metzner, MD; Alexander Fuernkranz, MD; Karl-Heinz Kuck, MD

Background—Paroxysmal atrial fibrillation (AF) naturally progresses toward chronic AF at an estimated rate of 15% to 30% over a 1- to 3-year period. Pulmonary vein (PV) isolation is increasingly performed for the treatment of drug-refractory paroxysmal AF. The long-term data on clinical outcome after circumferential PV isolation are limited.

Methods and Results—From 2003 to late 2004, 161 patients (121 men; age, 59.8±9.7 years) with symptomatic paroxysmal AF and normal left ventricular function underwent circumferential PV isolation guided by 3-dimensional mapping and double Lasso technique. Right-sided and left-sided continuous circular lesions encircling the ipsilateral PVs were placed with irrigated radiofrequency energy. The procedure end point was the absence of all PV spikes for at least 30 minutes after PV isolation verified by 2 Lasso catheters placed within the ipsilateral PVs. Sinus rhythm was present in 75 patients (46.6%) after the initial procedure during a median follow-up period of 4.8 years (0.33 to 5.5 years). A second procedure was performed in 66 and a third procedure in 12 patients. Recovered PV isolation conduction was observed in 62 of 66 patients (94.0%) during the second and in 8 of 12 patients (66.7%) during the third procedure. After a median of 1 (1 to 3) procedure, stable sinus rhythm was achieved in 128 of 161 patients (79.5%), whereas clinical improvement occurred in an additional 21 of 161 patients (13.0%) during a median follow-up of 4.6 years (0.33 to 5.5 years). Four patients in stable sinus rhythm died during follow-up. Progression toward chronic AF was observed in 4 patients (2.4%); however, only 2 patients reported symptoms.

Conclusion—In patients with paroxysmal AF and normal left ventricular function, circumferential PV isolation results in stable sinus rhythm in the majority of patients, and low incidence of chronic AF was observed after ablation during up to 5 years of follow-up. (***Circulation*. 2010;122:2368-2377.**)

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Long-Term Outcomes After Cryoballoon Pulmonary Vein Isolation

Results From a Prospective Study in 605 Patients

Jürgen Vogt, MD, Johannes Heintze, MD, Klaus J. Gutleben, MD, Bogdan Muntean, MD, Dieter Horstkotte, MD, PHD, Georg Nölker, MD

Bad Oeynhausen, Germany

Objectives The purpose of this study was to investigate long-term outcomes of freedom from atrial fibrillation (AF) after pulmonary vein (PV) isolation using cryoballoon ablation with balloon-size selection based on individual PV diameters.

Background Data are lacking on long-term outcomes from cryoablation and on the most effective balloon size.

Methods This was a prospective observational study involving 605 consecutively enrolled patients with symptomatic paroxysmal AF (n = 579) or persistent AF. Cryoballoon size was based on magnetic resonance imaging and/or conventional angiograms. Patients were followed up every 3 months during the first year after discharge and every 6 months in the second year. After 24 months, follow-up was on an outpatient basis with documented AF episodes recorded.

Results The PV isolation was achieved without touch-up in 91.1% of patients, using the smaller balloon in 26.7%, the larger balloon in 25.6%, and both balloons in 47.7% of patients. Follow-up data for >12 months (median 30 months; interquartile range 18 to 48 months) were available for 451 patients, 278 (61.6%) of whom were free of AF recurrence with no need for repeat procedures after the 3-month blanking period. Rates of freedom from AF after 1, 2, and 3 repeat procedures (using cryoballoon or radiofrequency ablation with similar success rates) were 74.9%, 76.2%, and 76.9%, respectively. Use of the smaller balloons or both balloons produced the highest rates of long-term freedom from AF. Phrenic nerve palsy occurred in 12 patients (2%), resolving within 3 to 9 months.

Conclusions Rates of long-term freedom from AF after cryoballoon ablation are similar to those reported for radiofrequency ablation. A choice between balloons may improve outcomes. (J Am Coll Cardiol 2013;61:1707–12) © 2013 by the American College of Cardiology Foundation

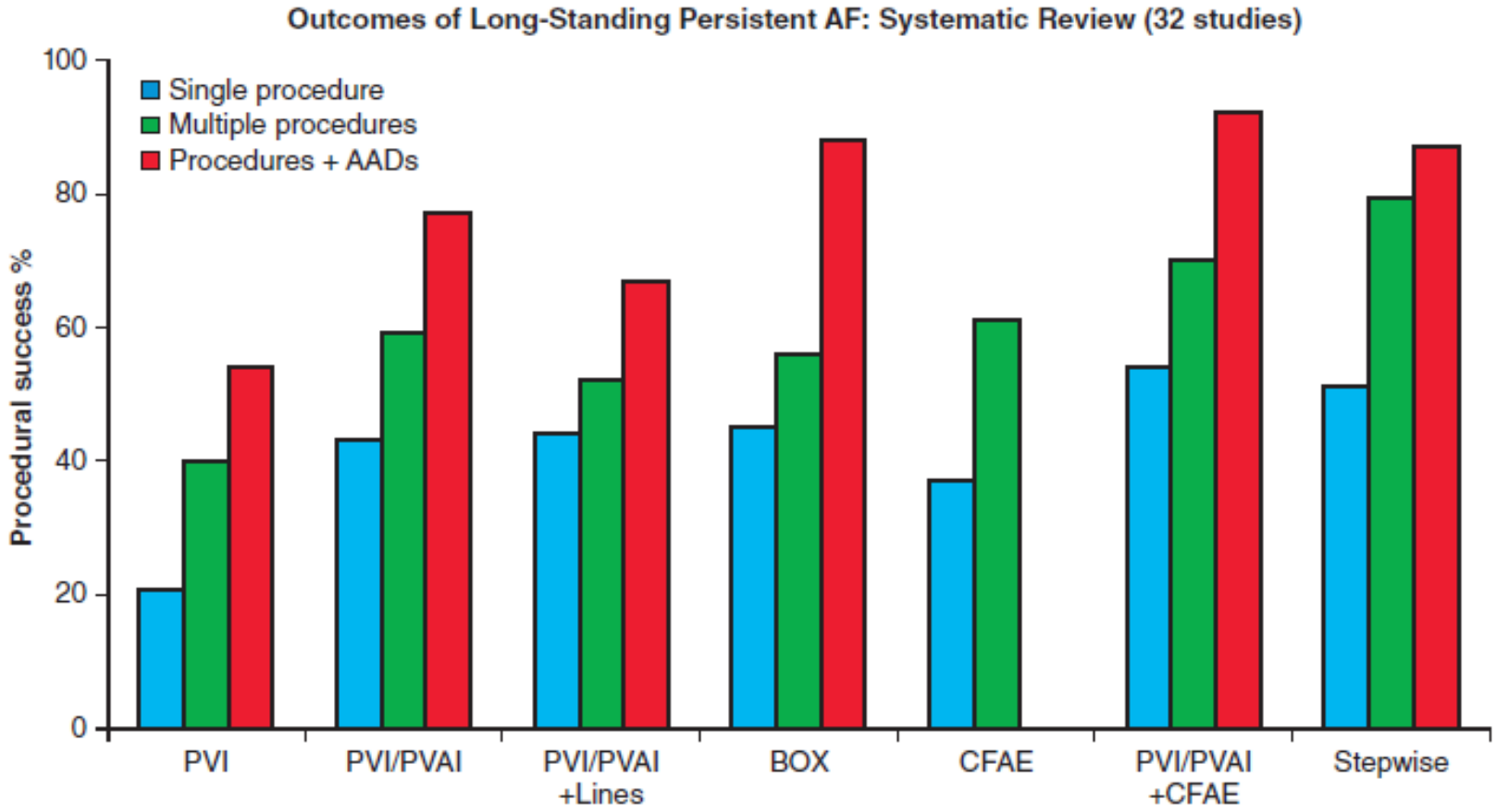

Figure 122-10. Summary of results from studies of catheter ablation for persistent atrial fibrillation.

AF ablasyonu

- **“Başarısızlığın”potansiyel belirleyicileri**
  - **“Non-paroksismal AF”**
    - “Uzun süreli persistan AF”
  - Uyku-apne ve obezite
  - **Sol atriyum çapı / hacmi**
  - İlerlemiş yaş,
  - HT
  - **Sol atriyumda fibrozis**

Komplikasyonlar

Deneyimli merkezlerde <%2

- Girişim yeri
- Tamponand
- Pulmoner stenoz
- Aort ponksiyonu
- Özafagus fistulü
- Phrenik sinir hasarı
- Mitral kapak hasarı
- Endokardit
- Serebral emboli

İlk kez AF ablasyonu yapacak kişilere öneriler

EFÇ işleminde tecrübeli olmak

Mutlaka tecrübeli birinden destek istemek

Hasta özellikleri (Genç, Prok.AF, erkek ..)

Anatomiye hakim olmak

Komplikasyon için hazırlıklı olmak

Teşekkürler