nMARQ Kateteri ile Ablasyon

Prof. Dr. Ahmet Duran Demir
Acıbadem Üniversitesi
Tıp Fakültesi

nMARQ Sistemi

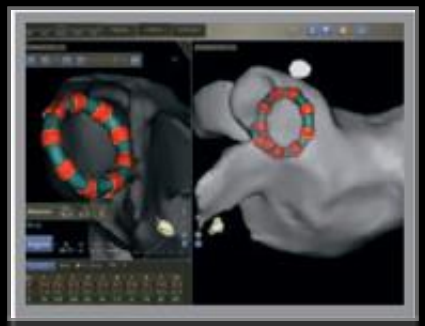
 Irrigasyon

 Navigate

 Çoklu ablasyon

CATHETERS

CARTO® 3 SYSTEM INTERFACE



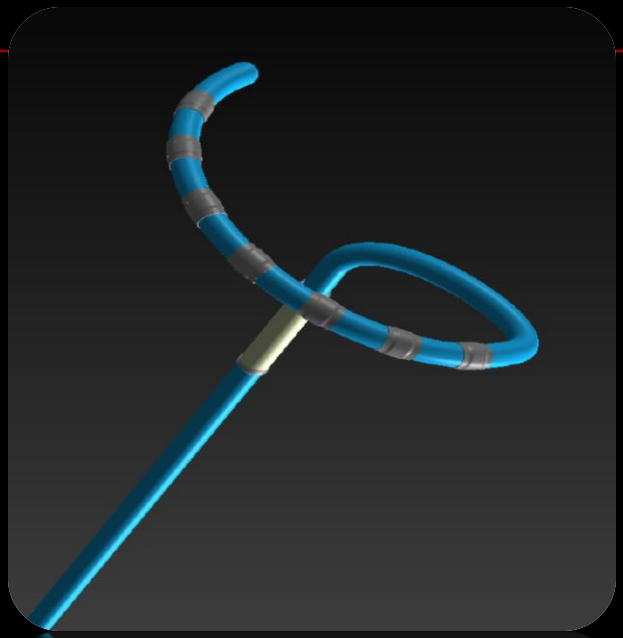
MULTI-CHANNEL GENERATOR

nMARQ Kateter

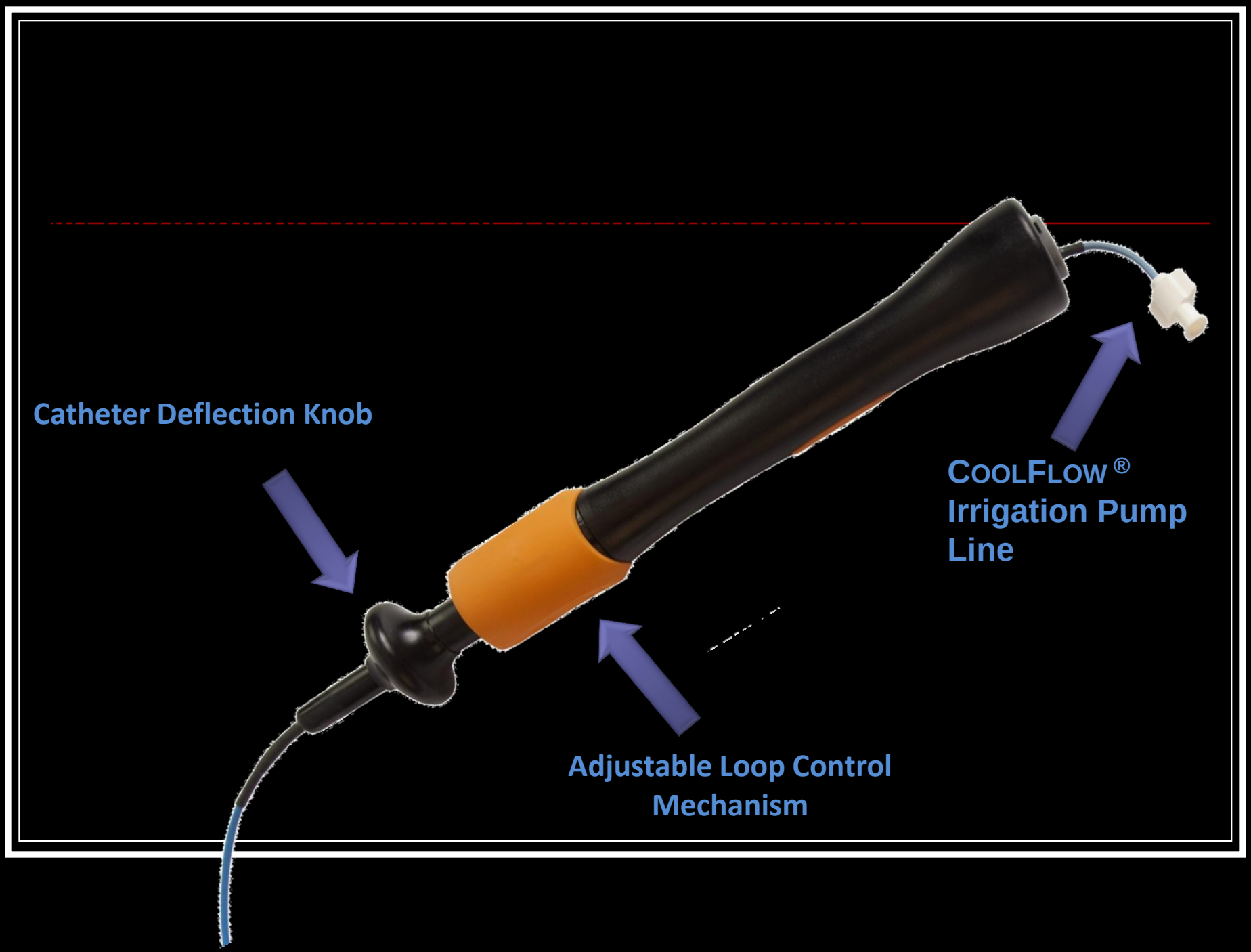
nMARQ™ Circular Catheter

Loop size 8.4 Fr

Shaft size 7.6 Fr



nMARQ™ Crescent Catheter


Catheter Deflection Knob
COOLFLOW ®
Irrigation Pump
Line
Adjustable Loop Control
Mechanism

nMARQ™ Multi-Channel RF Sistem

- Unipolar and Bipolar ablasyon
  - Unipolar Max power 25 W
  - Bi polar Max power 15 W
- Her bir kanal birbirinden bağımsızdır. Birbiriyle etkileşmez.
- Her bir elektrod
  - Diğerlerinden bağımsız kapatılabilir.
  - Güç (Power) birbirinden bağımsız olarak ayarlanabilir.
- Isı ve impedans değerleri her bir elektrod için ayrı ayrı ölçülebilir.

FLUSHING Flow Rate	**60mL/min**	
MAPPING Flow Rate	**4mL/min**	
	UNIPOLAR MODE	**BIPOLAR MODE**
RF POWER Setting	≤25W (for one ring electrode)	≤15W (for one ring electrode)
Application Time	≤60 sec	≤60 sec
Irrigation Flow Rate During RF Application	**60 ml/min**	**60 ml/min**
Temperature Monitoring	≤47°C*	≤47°C*
Irrigation Flow Rate During RF Application	**42 ml/min**	**42 ml/min**
Temperature Monitoring	≤47°C*	≤47°C*

nMARQ™ Circular Catheter

nMARQ™ Crescent Catheter

*** The temperature displayed on the RF generator does not represent tissue temperature or electrode tissue interface temperature.**

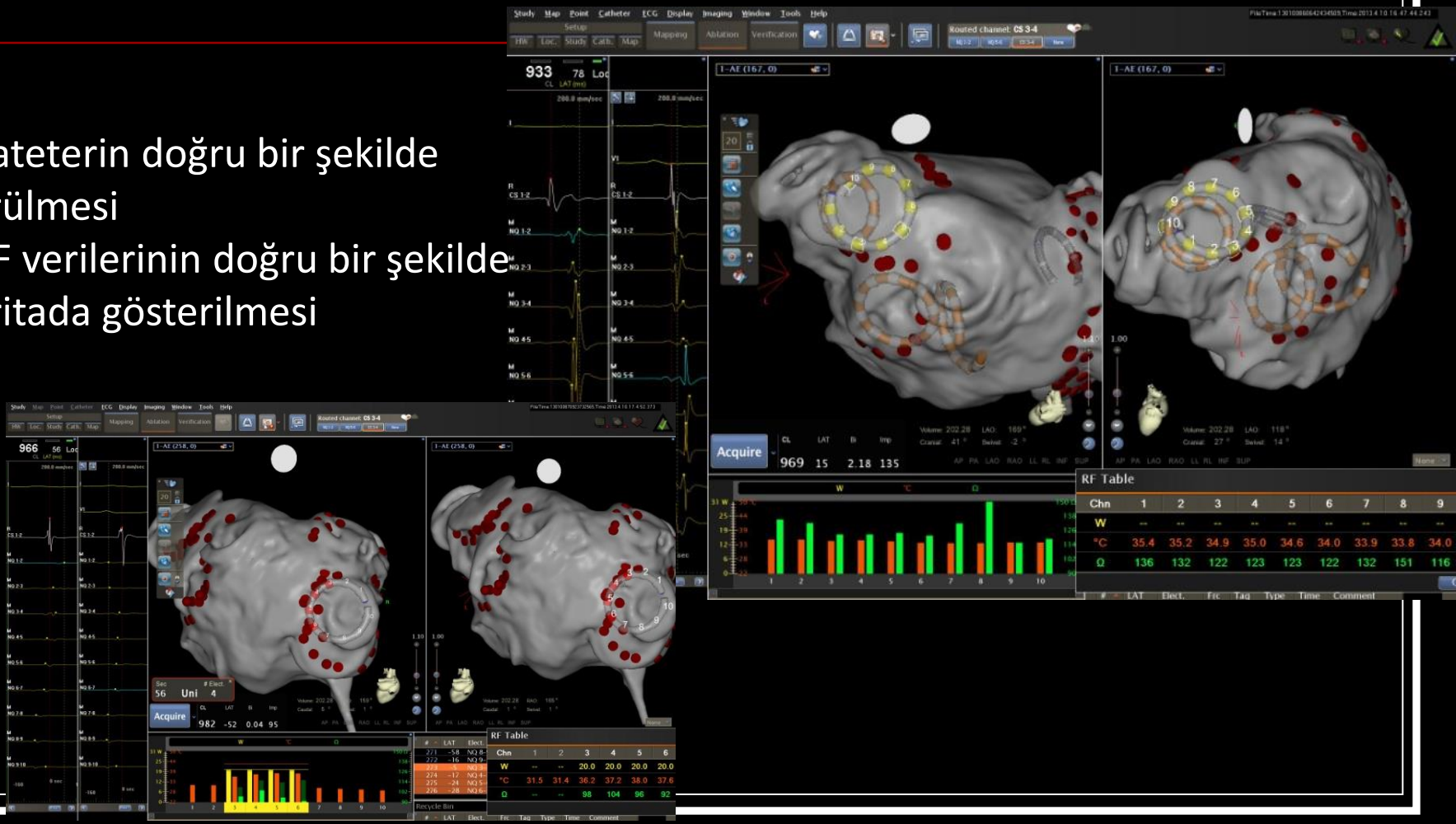
*** RF, power, ısı ve uygulama zaman değerleri maksimum değerlerdir. Bu değerler hastanın durumu ve kliniğe göre değiştirilebilir.**

nMARQ kateteri ile

- CARTO 3 içim hızlı elektro-anatomik haritalama için bilgi toplanabilir
- Unipolar yada bipolar sinyaller görüntülenebilir.
- Her bir elektroddan pace edilebilir.
- Her bir elektroddan ablasyon yapılabilir.
- RF verilen noktalar işaretlenebilir.
- TİSSUECONNECT teknolojisi kullanılarak iyi kontakt yapmayan elektrodlar kapatılabilir.

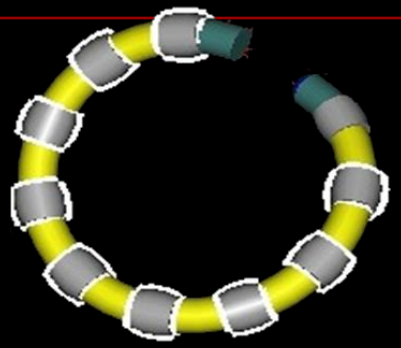
nMARQ & CARTO 3 Sistem

- Kateterin doğru bir şekilde görülmesi
- RF verilerinin doğru bir şekilde haritada gösterilmesi



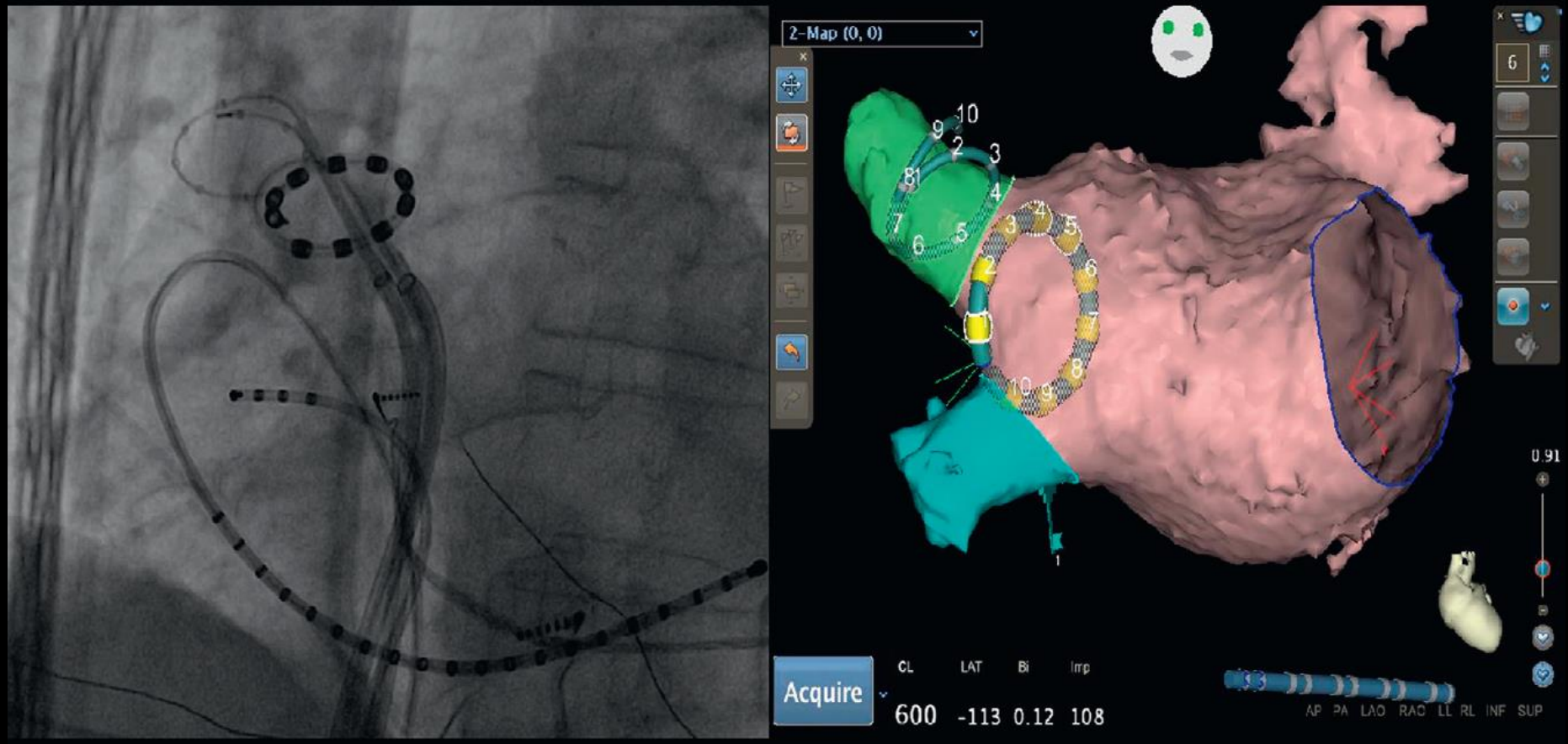
TİSSUECONNECT Teknoloji

Unipolar



Bipolar

- Unipolar – Her bir elektrod gösterilir.
- Bipolar – Eletrod çifti gösterilir.
- Kontakt problemi olan elektrodlar ablasyon başlamadan deaktive edilirler


2-Map (0, 0)
Acquire
CL
LAT
Bi
Imp
600
-113
0.12
108
0.91
AP PA LAO RAO LL RL INF SUP

PubMed | nmarq catheter

Summary 20 per page Sort by Most Recent

Results: 12

1. Ablation of atrial fibrillation and esophageal injury: role of bipolar and unipolar energy using a novel multipolar irrigated ablation catheter.
Di Monaco A, Quadrini F, Katsouras G, Caccavo V, Troisi F, Guaricci F, Cecere G, Langialonga T, Grimaldi M.
Heart Rhythm. [illegible]
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2. Fluoroscopy-Free PVI with nMARQ™ in a Patient with a PFO.
Mohl A, Kühne M, Sticherling C, Knecht S.
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3. Phrenic nerve lesion: a potential complication of the nMARQ ablation technique.
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PMID: [illegible]

4. Modified energy settings are mandatory to minimize oesophageal injury using the novel multipolar irrigated radiofrequency ablation catheter for pulmonary vein isolation.
Rillig A, Lin T, Burchard A, Kamioka M, Heeger C, Makimoto H, Metzner A, Wissner E, Wohlmuth P, Ouyang F, Kuck KH, Tilz RR.
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5. [From treating to curing--new era in the approach to patients with atrial fibrillation].
Laish-Farkash A, Katz A, Khalameizer V.
Harefuah. [illegible]
PMID: [illegible]

6. Pulmonary vein isolation with a new multipolar irrigated radiofrequency ablation catheter (nMARQ™): feasibility, acute and short-term efficacy, safety, and impact on postablation silent cerebral ischemia.
Scaglione M, Caponi D, Anselmino M, Di Clemente F, Blandino A, Ferraris F, Di Donna P, Ebrille E, Halimi F, Leclercq JF, Iunco C, Vaudagna C, Cesarani F, Gaita F.
J Cardiovasc Electrophysiol. [illegible]
PMID: [illegible]

7. Pulmonary vein isolation using a circular, open irrigated mapping and ablation catheter (nMARQ): a report on feasibility and efficacy.
Zellerhoff S, Daly M, Lim HS, Denis A, Komatsu Y, Jesel L, Derval N, Sacher F, Cochet H, Knecht S, Yiem S, Hocini M, Haïssaguerre M, Jaïs P.
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8. Cerebral microembolization during atrial fibrillation ablation: comparison of different single-shot ablation techniques.
Kiss A, Nagy-Baló E, Sándorfi G, Edes I, Csanádi Z.
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9. Radiofrequency ablation of paroxysmal atrial fibrillation with the new irrigated multipolar nMARQ ablation catheter: verification of intracardiac signals with a second circular mapping catheter.
Rosso R, Halkin A, Michowitz Y, Belhassen B, Glick A, Viskin S.
Heart Rhythm. [illegible]
PMID: [illegible]

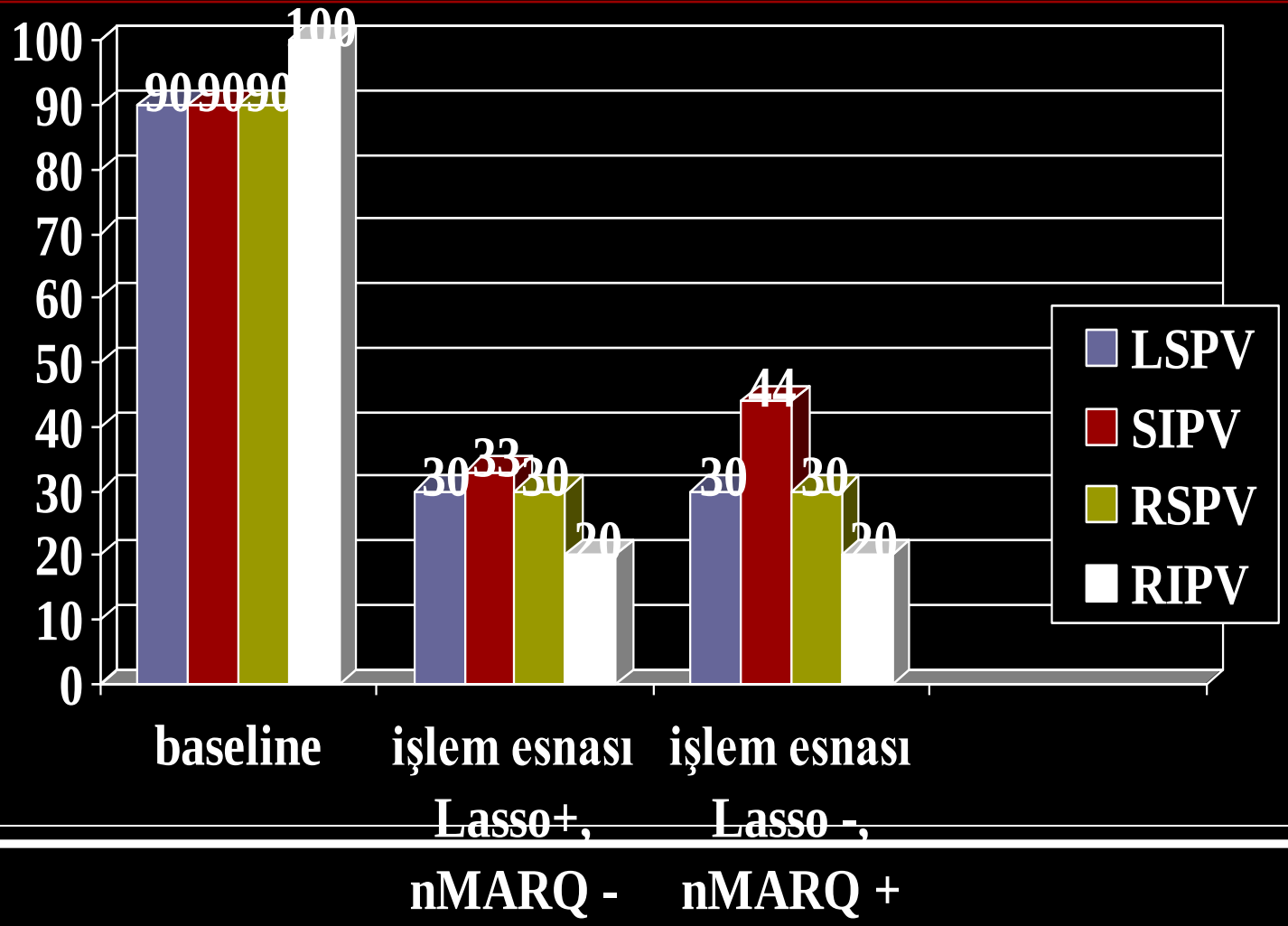
10. Initial results of using a novel irrigated multielectrode mapping and ablation catheter for pulmonary vein isolation.
Shin DI, Kirmanoglou K, Eickholt C, Schmidt J, Clasen L, Butzbach B, Rassaf T, Merx M, Kelm M, Meyer C.
Heart Rhythm. [illegible]
PMID: [illegible]

11. Ablation of right ventricular outflow tract tachycardia using a novel multipolar irrigated ablation catheter (nMARQ).
Tuan J, Ng GA.
Heart Rhythm. [illegible]
PMID: [illegible]

12. Acute safety and efficacy of a novel multipolar irrigated radiofrequency ablation catheter for pulmonary vein isolation.
Deneke T, Schade A, Müller P, Schmitt R, Christopoulos G, Krug J, Szöllösi G, Mügge A, Kerber S, Nentwich K.
J Cardiovasc Electrophysiol. [illegible]

nMARQ kateteri ile Lasso kateter kayıtlarının karşılaştırılması

Rosso ve ark. Heart Rhythm 2014;11:559-565




I
II
V1
n1-2
n2-3
n3-4
n4-5
n5-6
n6-7
n7-8
n8-9
n9-10
L1-2
L3-4
L5-6
L7-8
L9-10

Europace (2014) **16**, 1296–1303
doi:10.1093/europace/euu133

Pulmonary vein isolation using a circular, open irrigated mapping and ablation catheter (nMARQ): a report on feasibility and efficacy

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Aims Pulmonary vein isolation (PVI) is the mainstay of interventional treatment of paroxysmal atrial fibrillation (PAF). We report on the feasibility and efficacy of a novel, open-irrigated mapping and radiofrequency (RF) ablation catheter.

Methods and results Thirty-nine consecutive patients (pts; age 60 ± 10 years, 8 females) suffering from drug-refractory PAF referred for PVI were included in this prospective study. Pulmonary vein isolation was performed with the use of a novel 10-pole circular, open-irrigated mapping and ablation catheter (nMARQ, Biosense Webster). Outcome parameters were the acute success rate in establishing complete PVI and the rate of sustained sinus rhythm (SR) during follow-up (FU). Ten patients underwent a repeat procedure for recurrent AF. Ninety-eight percent of the PVs could be acutely isolated using solely the nMARQ catheter by applying a mean total of 10.0 ± 4.6 min of RF energy. The mean total procedure duration was 86 ± 29 min, and the mean fluoroscopy time was 22.2 ± 6.5 min, respectively. Transient reconnection provoked by adenosine was observed in 10 of 24 patients, most frequently in the right superior PV. Cardiac tamponade related to transseptal puncture occurred in one patient. Reconnected PVs could be identified as a source of recurrent AF in 9 of 10 patients undergoing a repeat procedure. Single and multiple procedure success rates during a mean FU of 140 ± 75 days were 66 and 77%, respectively.

Conclusion Irrigated multi-electrode RF ablation is fast and effective, providing a high rate of isolated PVs without the need of touch-up lesions. Success rates were comparable with other techniques with a low complication rate. Recurrences of AF were mainly due to recovered pulmonary vein/left atrium conduction.

39 PAF HASTASI, UNİPOLAR 25 W, 60 SN, POSTERİYOR DUVAR 20 W 60 SN, KOMPL. YOK

Table 2 Procedural data

Procedure duration, mean ± SD, min	86 ± 29
Fluoroscopy duration, mean ± SD, min	22.2 ± 6.5
Total RF delivery duration (PVI), mean ± SD, min	10.0 ± 4.6
RF delivery duration per vein, mean ± SD, s	
RSPV	217 ± 212
RIPV	114 ± 62
LSPV	152 ± 97
LIPV	116 ± 65

RF, radiofrequency; RSPV, right superior pulmonary vein; RIPV, right inferior pulmonary vein; LSPV, left superior pulmonary vein; LIPV, left inferior pulmonary vein.

Initial results of using a novel irrigated multielectrode mapping and ablation catheter for pulmonary vein isolation

Dong-In Shin, MD, Kiriakos Kirmanoglou, MD, Christian Eickholt, MD, Jan Schmidt, MD, Lukas Clasen, MD, Britta Butzbach, MD, Tienush Rassaf, MD, Marc Merx, MD, Malte Kelm, MD, Christian Meyer, MD

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BACKGROUND Pulmonary vein isolation (PVI) as a cornerstone for catheter ablation of atrial fibrillation (AF) remains a complex and time-consuming procedure.

OBJECTIVE To assess feasibility, safety, and acute efficacy of a novel irrigated multielectrode ablation catheter guided by an electroanatomic mapping system for PVI in patients with paroxysmal AF.

METHODS Twenty-five consecutive patients (60 ± 10 years) with paroxysmal AF underwent PVI by using a novel decapolar mapping and ablation catheter (nMARQ catheter, Biosense Webster Inc, Diamond Bar, CA). Ablation was guided by electroanatomic mapping allowing radiofrequency (RF) energy delivery in the antral region of pulmonary veins (PVs) from 10 irrigated electrodes simultaneously. The day after ablation, cardiac magnetic resonance imaging was performed routinely in order to assess for potential acute PV stenosis.

RESULTS Overall, 97 of 97 (100%) targeted PVs could be isolated with a mean of 27 ± 11 RF applications and a mean total burning time of 15 ± 6 minutes per patient. The total procedure time from femoral vein access to catheter withdrawal was 110 ± 31 minutes, including a mean total fluoroscopy time of 23 ± 9 minutes. On average, 6 ± 3 RF impulses with a maximum of 25 W were applied per vein. After a short learning curve, procedure, fluoroscopy, and total burning times decreased to 94 ± 16, 16 ± 3, and 9 ± 2 minutes, respectively ($P < .05$). Entrance and exit blocks could be verified by placing the ablation catheter into 90 of 97 (93%) PVs in 18 of 25 (72%) patients. No procedure-related complications were observed, especially no acute PV stenosis could be detected.

CONCLUSIONS The use of a novel irrigated multielectrode ablation system for PVI is feasible and safe, resulting in acute isolation of all targeted PVs with no complications and short procedure times. Sustainability of these initial results has to be confirmed in long-term efficacy and follow-up trials.

KEYWORDS Atrial fibrillation; Catheter ablation; Multielectrode ablation catheter

ABBREVIATIONS 3D = 3-dimensional; **ACT** = active clotting time; **AF** = atrial fibrillation; **FAM** = fast anatomic mapping; **INR** = international normalized ratio; **MRI** = magnetic resonance imaging; **PV** = pulmonary vein; **PVAC** = pulmonary vein ablation catheter; **PVI** = pulmonary vein isolation; **RF** = radiofrequency; **RIPV** = right inferior pulmonary vein

(Heart Rhythm 2014;11:375–383)

25 HASTA ALINMIŞ. HEPSİNDE BAŞARILI PVI YAPILMIŞ.KOMPLİKASYON YOK. BURDADA İLK 10 VAKADAN SONRA 20 WATT 45 SN VERMİŞLER. 4 AYLIK TAKİPTE %80.9 ARİTMİ YOK.

Table 2 Procedural and ablation data

A: Procedural data	
Procedure time (min)	110 ± 31
Fluoroscopy time (min)	23 ± 9
Total burning time (min)	15 ± 6
Complications	–
Access site complications	–
Pericardial tamponade	–
TIA/stroke	–
PV stenosis	–
Phrenic nerve palsy	–
Atrioesophageal fistula	–
Death	–
B: Ablation data	
Procedures	25
Total PV	97
Common ostium	3
Successful PV isolation with the nMARQ catheter	97 of 97 (100)
Successful PV intubation with the nMARQ catheter	90 of 97 (93)
Mean number of RF applications—total	27 ± 11
Mean number of RF applications—LSPV	9 ± 5
Mean number of RF applications—LIPV	7 ± 5
Mean number of RF applications—RSPV	5 ± 2
Mean number of RF applications—RIPV	5 ± 2
Charring of the nMARQ electrode	3 of 25 (12)

Data are presented as mean ± SD and as n (%).

LIPV = left inferior pulmonary vein; LSPV = left superior pulmonary vein; PV = pulmonary vein; RIPV = right inferior pulmonary vein; RF = radiofrequency; RSPV = right superior pulmonary vein; TIA = transient ischemic attack.

Initial results of using a novel irrigated multielectrode mapping and ablation catheter for pulmonary vein isolation

Dong-In Shin, MD, Kiriakos Kirmanoglou, MD, Christian Eickholt, MD, Jan Schmidt, MD, Lukas Clasen, MD, Britta Butzbach, MD, Tienush Rassaf, MD, Marc Merx, MD, Malte Kelm, MD, Christian Meyer, MD

Table 4 Comparison of procedural data in different ablation technologies used for PVI in treatment of paroxysmal atrial fibrillation

Technology	Acute success (%)	Procedure time (min)	Fluoroscopy time (min)	n
Conventional RF ablation[2]	97.6	165	24	2870
Cryoballoon ablation[2]	97.5	160	34	905
Visually guided laserablation[3]	98.8	200	31	200
PVAC[15]	100	133	30	89
nMARQ catheter	100	110	23	25

Data are presented as mean values.

PVAC = pulmonary vein ablation catheter; PVI = pulmonary vein isolation; RF = radiofrequency.

Acute Safety and Efficacy of a Novel Multipolar Irrigated Radiofrequency Ablation Catheter for Pulmonary Vein Isolation

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Acute Safety and Efficacy of the Novel nMARQ™ Catheter. *Introduction:* "Single shot" ablation devices to treat symptomatic atrial fibrillation have been engineered over the last years. Safety and efficacy also includes subclinical complications only detected with esophageal endoscopy or cerebral MRI in asymptomatic patients. We studied the acute efficacy and safety profile of a novel multipolar irrigated RF ablation catheter (nMARQ™).

Methods and Results: Forty-three patients underwent pulmonary vein isolation (PVI) using the novel ablation device. Patient baseline and procedural characteristics were documented. Efficacy of PVI was identified using only the nMARQ™ catheter. All patients underwent postablation endoscopic evaluation of the esophagus to document thermal damage and cerebral MRI (diffusion weight imaging, attenuated diffusion coefficient-map) to document incidence and number of silent cerebral lesions (SCL). Effective PVI was achieved in 98% of targeted PVs in a mean procedure time of 133 minutes. A mean of 4.8, 60-second RF applications, per PV was needed for effective PVI. No clinical procedure-associated complications were noted. Esophageal temperature increase >40.5 °C was noted in 22 (51%) patients and 14 of these had thermal esophageal lesions on endoscopic evaluation. A total of 26 SCLs were noted in 14 patients (33%; 1.9/patient; mean diameter of 2.3 mm, 88% of lesions were ≤3 mm).

Conclusions: PVI using the novel irrigated RF multipolar ablation device (nMARQ™) appears to be acutely effective. No clinical complications were identified. A high incidence of SCL (33%) and thermal esophageal lesions (33%) bears caution and further studies on long-term efficacy and safety are needed.
(J Cardiovasc Electrophysiol, Vol. 25, pp. 339-345, April 2014)

TABLE 1

Baseline, Procedural and Acute Outcome of Patients

Total Number of Patients	**N = 43**	**Range**
Age (years)	64 (12)	51–78
Ejection fraction (%)	62 (9)	45–70
Paroxysmal	28 (65%)	
Female	17 (40%)	
Left atrial dimensions (mm)	44 (5)	35–55
Ablation on OAC (INR > 2.0)	14 (33%)	
Ablation on NOACs	15 (34%)	
Ablation under bridging	14 (33%)	
INR at day of procedure in OAC patients	2.2 (0.3)	2.0–2.8
Procedure duration (minutes)	133 (41)	90–210
Fluoro time (minutes)	20 (6)	8–37
RF duration (minutes)	19 (7)	7–37
Isol PVs	160 (98%)	
Mean RF (minutes)/Isol PV	4.8 (2)	2.5–9.5
Minimum ACT (seconds)	305 (51)	229–418
Mean ACT (seconds)	334 (78)	304–540
Number of Eso-T-increase >40.5 °C	22 (51%)	
Mean max. Eso temp (°C)	41.6 (0.8)	41.0–43.6
Endoscopic Eso lesions (%)	14 (33%)	
SCL-rate	14 (33%)	
Mean SCL/Pat	1.9	1–8
Mean SCL size (mm)	2.3 (2.0)	1–9

no. = number; ACT = activated clotting time; Isol = isolated; SCL = silent cerebral lesions; Eso = esophageal.

PVI için kullanılan çeşitli yöntemlerdeki komp oranları

Özefajial lezyon (%)

- nMARQ 33
- Basit irrigasyon kat 11
- Cryo-balon 17
- Phased RF (PVAC) 8

Sessiz serebral lezyon

- nMARQ 33
- Basit irrigasyon kat 24
- Laser balon 24
- Cryo-balon 21
- Phased RF (PVAC) 37

Pulmonary Vein Isolation with a New Multipolar Irrigated Radiofrequency Ablation Catheter (nMARQ™): Feasibility, Acute and Short-Term Efficacy, Safety, and Impact on Postablation Silent Cerebral Ischemia

MARCO SCAGLIONE, M.D.,* DOMENICO CAPONI, M.D.,* MATTEO ANSELMINO, M.D., PH.D.,† FRANCESCA DI CLEMENTE, M.D.,* ALESSANDRO BLANDINO, M.D.,† FEDERICO FERRARIS, M.D.,† PAOLO DI DONNA, M.D.,* ELISA EBRILLE, M.D.,† FRANCK HALIMI, M.D.,‡ JEAN F. LECLERCQ, M.D.,‡ COSTANZA IUNCO, M.D.,§ CARLOEUGENIO VAUDAGNA, M.D.,§ FEDERICO CESARANI, M.D.,§ and FIORENZO GAITA, M.D.†

From the *Cardiology Division, Cardinal Guglielmo Massaia Hospital, Asti, Italy; †Division of Cardiology, Department of Medical Sciences, University of Turin, Italy; ‡Department of Rythmology, CMC Parly II Le Chesnay, Le Chesnay, France; and §Division of Radiology, Cardinal Massaia Hospital, Asti, Italy

PVI with nMARQ™. ***Background:*** **Simultaneous multipolar ablation catheters have been proposed to simplify pulmonary vein isolation (PVI) in paroxysmal atrial fibrillation (AF). Recently, a new multipolar irrigated radiofrequency (RF) ablation catheter (nMARQ™, Biosense Webster Inc., Diamond Bar, CA, USA) combining both 3-dimensional electroanatomic mapping and multipolar open-irrigated ablation capability has been developed. Aim of our study was to assess feasibility, acute and short-term success and safety of PVI by the use of this new technology with particular regard to the incidence of postablation silent cerebral ischemia (SCI).**

Methods and Results: **Twenty-five patients (76% males; age 57 ± 13 years) with paroxysmal AF underwent PVI using the nMARQ™ catheter. PVI, confirmed by Lasso catheter mapping, was achieved in 100 out of 102 pulmonary veins (98%) identified, and final PVI was obtained in 24 out of 25 (96%) patients. The overall concordance between Lasso and nMARQ™ signals in demonstrating PVI was 78%. No major procedural complications occurred and no patient suffered SCI, on the basis of cerebral magnetic resonance imaging performed before and after the procedure. Following a 6-month follow-up, 17/25 (68%) patients remained free from AF without antiarrhythmic drugs.**

Conclusions: **In our preliminary experience, PVI with nMARQ™ catheter appears to be feasible and safe, without incidence of SCI. Long-term clinical efficacy has to be evaluated in further studies.**
(J Cardiovasc Electrophysiol, Vol. 25, pp. 1299-1305, December 2014)

25 HASTA ALINMIŞ. HASTALARIN %96'sında PVI BAŞARILMIŞ. 20 W 45 DERECE, 40 SN VERİLMİŞ.

POSTERİYOR DUVARA İSE 18 W VERİLMİŞ.

Pulmonary Vein Isolation with a New Multipolar Irrigated Radiofrequency Ablation Catheter (nMARQ™): Feasibility, Acute and Short-Term Efficacy, Safety, and Impact on Postablation Silent Cerebral Ischemia

MARCO SCAGLIONE, M.D.,* DOMENICO CAPONI, M.D.,* MATTEO ANSELMINO, M.D., PH.D.,† FRANCESCA DI CLEMENTE, M.D.,* ALESSANDRO BLANDINO, M.D.,† FEDERICO FERRARIS, M.D.,† PAOLO DI DONNA, M.D.,* ELISA EBRILLE, M.D.,† FRANCK HALIMI, M.D.,‡ JEAN F. LECLERCQ, M.D.,‡ COSTANZA IUNCO, M.D.,§ CARLOEUGENIO VAUDAGNA, M.D.,§ FEDERICO CESARANI, M.D.,§ and FIORENZO GAITA, M.D.†

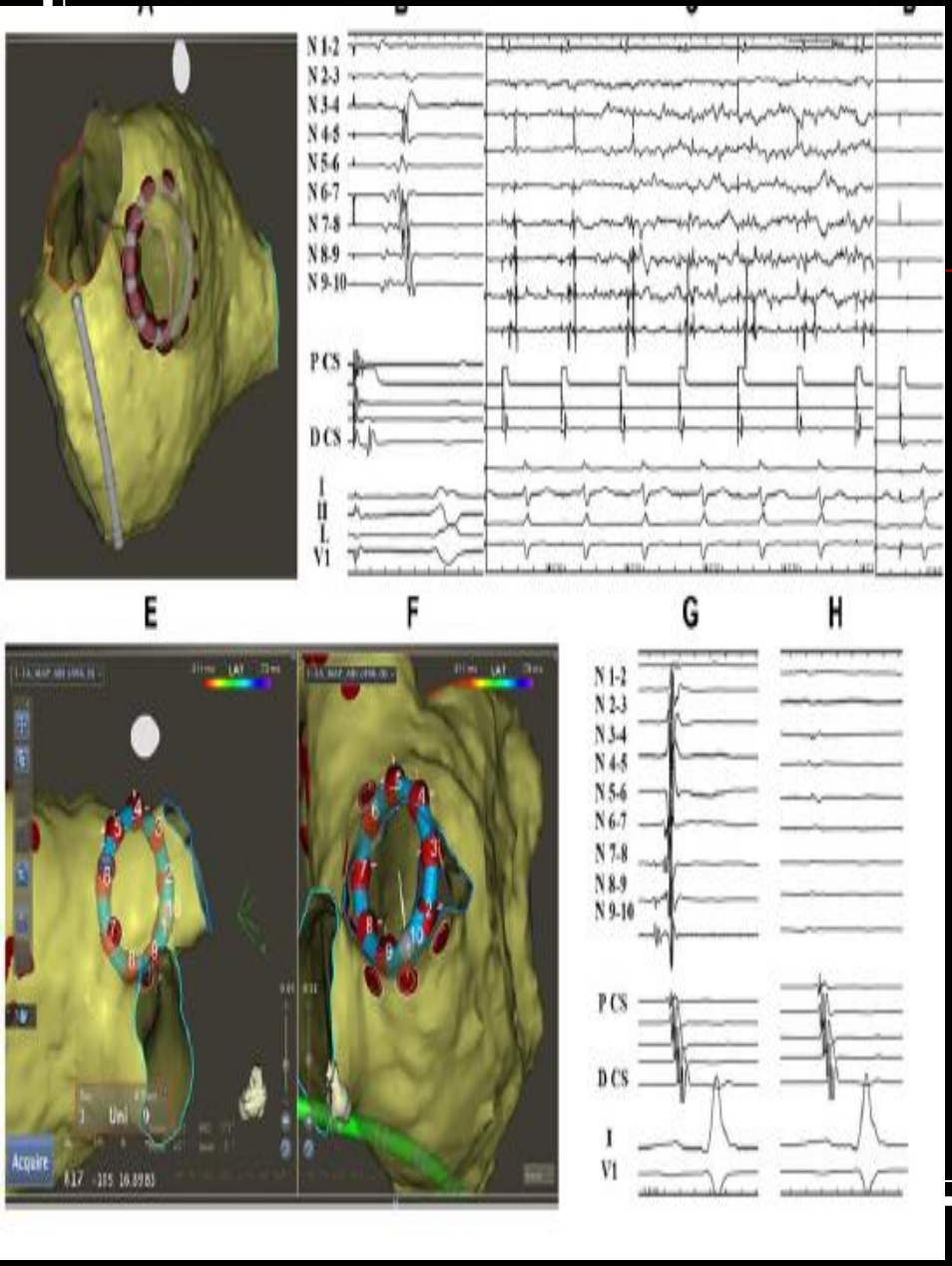
TABLE 2

Procedural Variables

Variables	
Total procedural time (minutes)	131 ± 49
Total fluoro time (minutes)	1.8 ± 2
Catheter placement time (minutes)	29 ± 16
Fluoro time during catheter placement (minutes)	1.5 ± 1.8
Time of LA mapping (minutes)	11 ± 5
Fluoro time during LA mapping (minutes)	0.2 ± 0.3
Mean RF time (minutes)	14.9 ± 3.7
Fluoro time during RF (seconds)	2 ± 9
Mean ACT (seconds)	372 ± 40
Irrigation volume (mL)	1603 ± 433

ACT = activated clotting time; LA = left atrium; RF = radiofrequency.

- 25 hasta
- PV'lerin %98'i isole edilmiş.
- Lasso ve nMARQ korelasyonu %78
- Majör prosedür ile ilgili komplikasyon %0
- MR ile değerlendirilen sessiz serebral infarktüs yok
- 6 aylık takipte %68 hastada aritmi saptanmadı



Deneke'nin çalışmasına göre sessiz serebral iskemi daha az olmasının sebepleri

- Total RF süresi daha az (19 dk'a 14.95 dk) (her seferde en fazla 40 sn)
- Sheth'in kateter yerleşiminden sonra RA'a çekilmesi
- Proksimal ve distal elektrod overlap yaptığında sadece tek elektroddan RF verme
- ACT değerini işlem sırasında daha yüksek değerde tutma (334'e 372)

Modified energy settings are mandatory to minimize oesophageal injury using the novel multipolar irrigated radiofrequency ablation catheter for pulmonary vein isolation

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Aims The multipolar irrigated radiofrequency (RF) ablation catheter (nMARQ™) is a novel tool for pulmonary vein isolation (PVI). We investigated the incidence of thermal oesophageal injury (EI) using the nMARQ™ for PVI.

Methods and results In the initial six patients (Group 1), RF was delivered at the posterior wall with a maximum duration of 60 s and a maximum power (maxP) of 20 W for unipolar ablation, and a maxP of 10 W for the bipolar ablation. In the latter 15 patients (Group 2), RF application was limited at the posterior wall to a maximum duration of 30 s and a maxP of 15 W for unipolar ablation a max P of 10 W for bipolar ablation. Oesophageal temperature monitoring was performed in all patients and ablation was terminated at a temperature rise >41°C. Endoscopy was carried out within 2 days post-ablation. Pulmonary vein isolation was performed during sinus rhythm and was successfully achieved in 83 of 84 PVs except the septal inferior vein in one patient. Charring was seen in 3 of 21 (14.3%) patients without any evidence of embolism. Phrenic nerve palsy occurred in one patient. Endoscopy revealed severe EI in 3 of 6 (50%) patients in Group 1 and in 1 of 15 patients (6.7%) in Group 2. Procedure times between Groups 1 and 2 were similar (228.3 ± 60.2 min vs. 221.3 ± 51.8 min; $P = 0.79$).

Conclusion An unexpectedly high incidence of thermal EI was noted following PVI using the nMARQ™ with the initial ablation protocol. However, the incidence of thermal EI can be sigificantly reduced with limited power and RF application time at the posterior left atrium.

GRUP I :6 HASTA. POSTERİYOR DUVARA UNİPOLAR 20 W, 60 SN….

GRUP II: 15 HASTA, UNİPOLAR 15 W, 30 SN.

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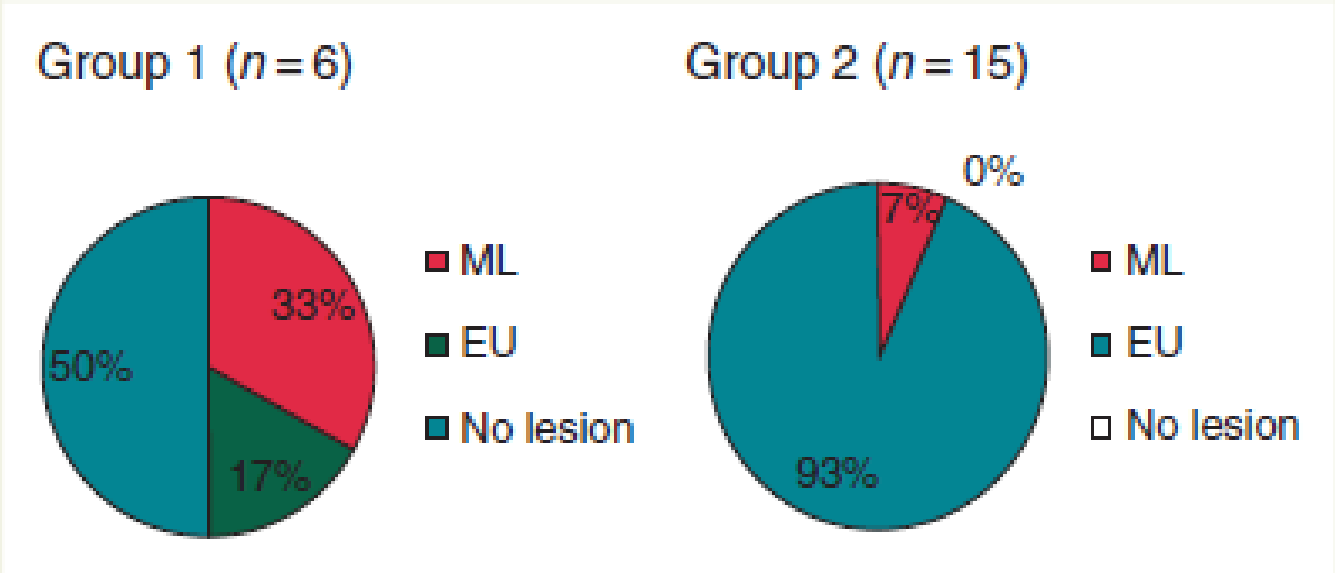

Figure 2 Incidence of EI in the different ablation groups. (*A*) Incidence of EI, ML and EU in patients of nMARQ™ Group 1. (*B*) Incidence of EI, ML and EU in patients of nMARQ™ Group 2.


A
B
C

nMARQ'nun Başka Endikasyonlarda Kullanımı

Ablation of right ventricular outflow tract tachycardia using a novel multipolar irrigated ablation catheter (nMARQ)

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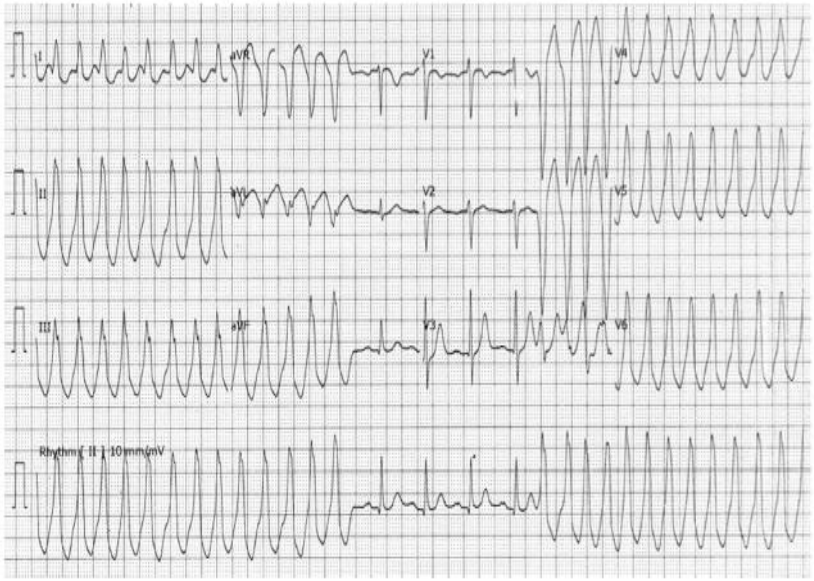

Twelve-lead electrocardiogram showing repetitive monomorphic ventricular tachycardia consistent with a right ventricular outflow tract origin.

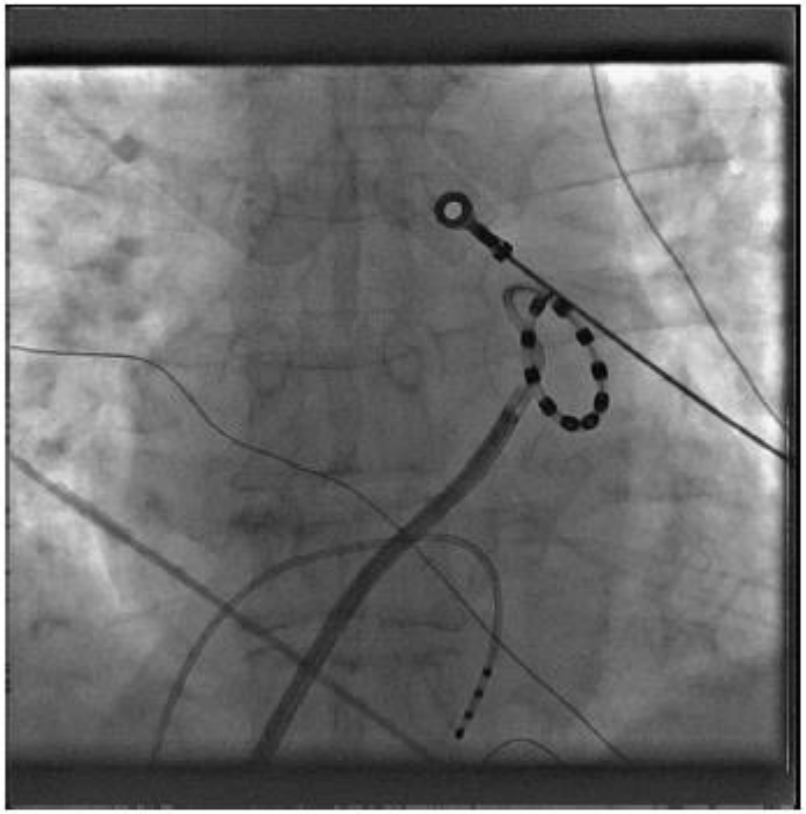

Figure 2 Fluoroscopic image of the nMARQ catheter deployed via the DIREX sheath at the right ventricular outflow tract.